SUSTAINABILITY OF U.S.-SUPPORTED HEALTH, POPULATION AND NUTRITION PROJECTS IN GUATEMALA: 1942-1987

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This report is the summary analysis of a study of A.I.D. assistance to the health sector in Guatemala. During a portion of the fieldwork the team included Terrence McCoy (Center for Latin American Studies, University of Florida), Marcia Townsend (Bureau for Science and Technology, A.I.D.) and J. Ellis Turner

(WASH Project, Bureau for Science and Technology, A.I.D.). Also, Reynaldo Gruesso helped present the study findings at the concluding workshop in Antiqua, Guatemala. We gratefully acknowledge the special contributions of each of these colleagues.

This project was very much a collective effort. Each team member participated in the development of the general methodology and the analytic framework of the study. In addition, individual team members prepared separate case studies that formed the basis for the analysis presented here. These case studies are referenced throughout this volume and are available as separate unpublished Working Papers from A.I.D. (see Appendix B for complete listing). In all cases, authors of the various reports drew on information from other team members and responded to many helpful comments and corrections on their drafts.

Other documents were prepared for this project and formed the basis for some of the analysis. Orlando Aguilar and Eusebio Del Cid, each of whom has been Director General of Health Services in previous Guatemalan administrations, prepared a history of the Government of Guatemala's Ministry of Health. Jaime Solorzano, the Director of Health Planning of the Ministry of Health, prepared an epidemiological study of health trends. Sonia de Massey carried out a special survey of rural health technicians used in the health services case study. Luis Porras collected data for epidemiological, economic, and financial analyses.

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PREFACE

Why are the activities and benefits of some health development assistance programs sustained while others are not? Which contextual factors seem most important for sustainability? Which project characteristics? Do some types of health programs seem inherently unsustainable? How should sustainability be defined and measured? What guidance can we offer policymakers and project and program managers? What type of research should we be doing?

In 1986, the Center for Development Information and Evaluation (CDIE) initiated a group of studies with special emphasis on assessing the sustainability of health project and program activities and benefits after A.I.D. funding ends. The decision to conduct these studies followed a prior set of evaluations carried out by A.I.D. in the early 1980s to try to understand more about

the impact (the actual effects) of its projects and programs in the health sector. The impact evaluations show clearly that many of those activities had difficulty continuing after outside assistance was terminated.

The studies undertaken by CDIE have taken several forms, including literature reviews, syntheses of existing evaluation reports, field studies of single completed health projects, and field studies taking a broad, sectoral, historical perspective. The present study of Guatemala falls into this last category, and follows a similar study in Honduras in 1986.

Since this report was written, CDIE has undertaken studies in Africa using the same basic approach and methodology that was used in Guatemala and Honduras. By compiling a larger sample of cases in a range of country settings, we may be able to develop generalizations about different types of health projects in different types of social, economic and political contexts.

In addition, a significant body of related work by other offices in A.I.D., as well as other lenders/donors, has begun to accumulate which focuses on sustainability and adds to the issues and the discussion set forth in this study. This report does not attempt to reflect these recent works, which will be incorporated in subsequent analytic efforts. The reader is asked to bear in mind, therefore, that we are presenting this report as a set of findings in one country in the larger effort now in progress, not as the final word on the important issue of sustainability.

Finally, the analysis in this report is based primarily upon case studies written by consultants during a six week field review in Guatemala in 1987. The case studies, and a detailed description of the analytical framework and methodology used in the study, are available as separate unpublished Working Papers from CDIE (see Appendix B).

SUMMARY

This report is the second in a series of comparative historical evaluations of the sustainability of U.S.-supported health projects. The central question is: what project characteristics and contextual factors have contributed to the continuation of project activities and benefits after project funding ceased? To answer this question, a group of consultants (U.S. and foreign nationals) and Agency for International Development (A.I.D.) staff adapted a standard methodology to a historical field review of all U.S. -supported health projects in Guatemala since the initiation of U.S. involvement in this sector.

Since 1942, A.I.D. and its predecessor agencies have funded 19 major health-related projects in Guatemala in five central areas: health services, water and sanitation, malaria control, family planning, and nutrition. These U.S.-supported projects brought significant benefits to Guatemala. Thousands of health workers, particularly primary health care paraprofessionals,

received training and continue to provide health, population and nutrition services. Institutions established with U.S. assistance, in particular those providing water and sanitation services and malaria control, have continued to provide benefits. Family planning services, which still depend on A.I.D. funding, have been effective in increasing contraceptive usage. Further, U.S. funds helped support the construction of a major hospital in Guatemala City, the Roosevelt Hospital, which has continued to provide services to Guatemalans for almost 40 years.

Sustainability is a complex and relative concept. We have defined it as the continuation of project outputs and benefits (outcomes) during the 3-year or longer period after A.I.D. funding is terminated.

Evidence shows that a significant number of the activities and benefits of U.S.-supported health projects in Guatemala over the last 45 years have been sustained. This evaluation demonstrates that some contextual factors and project characteristics were related to project sustainability.

Contextual Factors

Contextual factors are less subject to control by project designers and managers; however, because of their importance to project success and sustainability, they must be taken into account during project design and implementation.

The following contextual factors were found to be important to the sustainability of health projects in Guatemala:

-- National commitment to project goals and support from influential groups in the health sector positively affected sustainability.

-- Characteristics of implementing institutions had an adverse influence on sustainability when the organization was fragmented, with conflicting goals and an inadequately trained staff.

-- Sociocultural differences adversely affected sustainability when they were not taken into account and had a positive influence when they were.

The other contextual factors examined -- natural disasters, political environment, U.S.-Guatemalan Government relations, economic changes, the private sector, and donor coordination -- were either not sufficiently related to sustainability, or did not display sufficient variation to provide evidence of their impact on sustainability.

Project Characteristics

Project characteristics, unlike contextual factors, can be significantly controlled by project designers and managers. When

properly considered during project design and implementation, they can enhance project sustainability. Project characteristics that were important to the sustainability of U.S.-supported projects in Guatemala were the following:

-- Project effectiveness: Visibly effective and efficient achievement of project goals

-- Institutional organization and management: Projects integrated into the normal administrative structure of the implementing agency rather than vertically organized projects, as well as projects with stable, highly qualified leadership both within the implementing agency and from A.I.D.

-- Financial characteristics: Projects that provided for progressive absorption of recurrent costs by the national budget

-- Project content aspects: Projects that provided significant training at a professional or paraprofessional level, especially when employment prospects for trainees were good, and projects that provided long-term technical assistance

-- Project negotiation: Projects designed through a process of mutual respect in which A.I.D. and the Guatemalan Government reached consensus on project goals, activities, and implementation plans

The other project characteristics examined -- foreign exchange demand, requirements for a shift of resources from already established programs, cost recovery, cost-effectiveness, other selected project design elements, appropriate technology and community participation -- did not appear to be as important for sustainability as were the project characteristics mentioned above.

Policy Implications

This study identified five lessons that were of particular importance in the design and implementation of sustainable projects in Guatemala:

1. Respect national priorities and national involvement in project design.

2. Enhance the administrative effectiveness and capacity of the implementing agencies and integrate project activities into those institutions. Avoid vertical projects.

3. Include a strong technical training component for professionals and paraprofessionals, and technical assistance that builds counterpart capacity.

4. Design project financing to encourage national absorption of recurrent project costs during the life of the project.

5. Design and implement projects to ensure that their effectiveness in achieving their goals and efficiency in using resources are perceptible to all participants -- implementing institutions, relevant government agencies, and beneficiaries.

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1 The first study was conducted in Honduras in 1986. "Health" projects include health, population, nutrition and water supply and sanitation.

GLOSSARY

AGES - Guatemalan Association for Family Life Education (Asociacion Guatemalteca de Educacion Sexual)

A.I.D. - Agency for International Development

AIDS - Acquired Immune Deficiency Syndrome

APROFAM - Guatemalan Association for Family Welfare (Asociacion Pro-Bienestar de la Familia de Guatemala)

CABEI - Central American Bank for Economic Integration (Banco Centroamericano de Integracion Economica)

CDIE/PPC - Center for Development Information and Evaluation/Bureau for Program and Policy Coordination

CIDA - Canadian International Development Agency

COPECAS - Permanent Coordinating Committee for Potable Water and Sanitation (Comit, Permanente de Cooperaci n de Agua Potable y Saneamiento)

CRS - Catholic Relief Service

DGSS - General Directorate for Health Services (Direccion General de Servicios de Salud)

DIMIF - Maternal-child Health Division (Division de Salud Materno-Infantil)

DSA - Department of Environmental Sanitation (Division de Saneamiento Ambiental)

DSM - Environmental Sanitation Department (Departamento de Saneamiento del Medio)

EMPAGUA - Municipal Water Company
(Empresa Municipal de Agua)

ERIS - Regional Sanitation Engineering School
(Escuela Regional de Ingeniera Sanitaria)

GNP - gross national product

ICA - International Cooperation Agency, a predecessor to A.I.D.

IDB - Interamerican Development Bank

IGSS - Guatemalan Social Security Institute
(Instituto Guatemalteco de Seguridad Social)

INCAP - Nutrition Institute for Central America and Panama
(Instituto de Nutricion de Centroam,rica y Panama)

INDAPS - National Health Personnel Training Institute
(Instituto Nacional de Adiestramiento de Personal de Salud)

INFOM - National Institute for Municipal Development
(Instituto Nacional de Fomento y de Obras Municipales)

IPPF - International Planned Parenthood Federation

IPROFASA - A private family planning commercial retail sales firm (Importadora de Productos Farmac,uticos, S.A.)

PAHO - Pan American Health Organization (Organizacion Panamericana de la Salud)

PIPOM - Population Information for Policymakers
(Informacion de Poblaci n para Formadores de Politica)

PRINAPS - Rural Health Promoter Training Research Project
(Proyecto de Investigacion de Adiestramiento de Promotores Rurales de Salud)

PVO - private and voluntary organization

ROCAP - Regional Office for Central America and Panama, A.I.D.

SCISP - Inter-American Cooperative Public Health Service
(Servicio Cooperativo Interamericano de Salud Publica)

SESP - Special Public Health Service (Servicio Especial de Salud Publica)

SINAPS - Integrated System of Nutrition and Primary Health

Care (Sistema Integrado de Nutricion y Atencion Primaria de Salud)

SNEM - National Service for Malaria Eradication (Servicio Nacional para la Erradicacion de la Malaria)

UNEPAR - implementing agency for rural water system (Unidad Ejecutora para Acueductos Rurales)

UNFPA - United Nations Fund for Population Activities

UNICEF - United Nations Children's Fund

WHO - World Health Organization

MAP OF GUATEMALA

1. INTRODUCTION

This evaluation focuses on the sustainability of U.S. Government-funded health, population, nutrition, and water and sanitation projects in Guatemala since the initiation of U.S. involvement in 1942. Its objective is to identify the project characteristics and contextual factors that were likely to have resulted in the continuation of project activities and benefits after project funding ceased.

Because the focus is on sustainability, no attempt was made to assess the overall impact of these projects on the health status of Guatemala's population. However, the effectiveness of individual projects is examined as a factor that may have influenced sustainability.

Guatemala was chosen for evaluation because of the long history of U.S. involvement in the health sector, the broad range of health projects implemented, and evidence of both sustained and unsustained project activities. Since 1942, the U.S. Government has funded 19 major health-related projects in Guatemala (see Table 1). At the time of this evaluation, funding of completed projects totaled over $25 million; funding of current projects totals an additional $30 million. These figures do not include PL 480 support, which has provided considerable assistance over the last several decades and continues to do so.

Regardless of whether projects were sustained following termination of U.S. funding, these U.S.-supported projects brought significant benefits to Guatemala. Thousands of health workers, particularly primary health paraprofessionals, received training and continue to provide health, population, and nutrition services. Institutions established with U.S. assistance, in particular those providing water and sanitation services and malaria control, have continued to provide benefits. Family

planning services, which still depend on Agency for International Development (A.I.D.) funding, have been effective in increasing contraceptive usage. Further, U.S. funds helped support the construction of a major hospital in Guatemala City, the Roosevelt

Table 1. U.S. Government-Supported Health Projects in Guatemala, 1942-1987

Project Name	Date	Project Number	Funding (in U.S. $)
Health Services Development			
SCISP Programs	(1942-1965)	520-0002/0067/0129/0130	2,909,000
Roosevelt Hospital	(1942-1960)	520-0131	87,000
Rural Mobile Health Units	(1964-1969)	520-0163	330,000
Strengthening Rural Health/Rural Health Technicians	(1971-1980)	520-0206/0218/0230	5,507,000
SINAPS/PRINAPS	(1979-1982)	932-0631/0632	1,479,000
Current Child Survival and Communities	(1980-1987)	520-0251/0339	20,474,000
Water and Sanitation			
Urban SCISP	(1955-1966)	20-50-900/906	3,144,000
Rural SCISP	(1952-1966)	520-0029/0085/0132 20-50-99/20-909-091	3,694,000
ERIS	(1966-1971)		300,000
Urban INFOM	(1972-1981)	520-017/027	4,800,000
First PVO	(1975-1977)	520-0231/0244	291,000
PVO Rural I	(1984-1986)	520-029	500,000
Current Rural Projects	(1984-1988)	520-0298/0335/0336/0251	10,500,000
Malaria Program			
Malaria Eradication	(1958-1969)	520-00095	5,091,000
Family Planning			
Family Planning	(1967-1987)	520-0189/0237/0263/0288	22,231,000
Nutrition Improvement-INCAP			
Fortification Projects	(1967-1980)	various	1,000,000
Nutrition Planning	(1976-1981)	596-0065	3,500,000
Other INCAP Projects	(1971-1986)	various	8,500,000
Current Projects	(1984-1990)	596-0115/0116	14,600,000

Hospital, which has continued to provide services to Guatemalans for almost 40 years.

Project activities fall into five major areas: health services, water and sanitation, malaria control, family planning, and nutrition. Each area was examined as a historical case study in this evaluation, and the findings incorporated into this report (see Appendix B for complete listing of case studies).

1.1 Health Services

U.S. Government support for the health sector in Guatemala began in the 1940s. U.S.-supported projects during the 1940s and 1950s were implemented through the Inter-American Cooperative Public Health Service (SCISP), which provided administrative and operational programs to strengthen the Ministry of Health in several areas. Through SCISP, the U.S. Government also provided support for the construction and equipping of Roosevelt Hospital in Guatemala City. Although U.S. assistance amounted to only 12 percent of the total cost of the hospital, that assistance played a decisive role in influencing the technical design of the hospital and its organizational and operational systems. SCISP continued to provide administrative and technical assistance to the hospital and the Ministry of Health until the 1960s through in-country and overseas training and the direct participation of U.S. advisers. The projects had a high priority within the Guatemalan Government, which contributed significant national funding to their support.

Between 1964 and 1969, a mobile rural health units program was developed in Guatemala. The program, which was part of a U.S. initiative throughout the Central American region, financed vehicles, training, and technical assistance for teams of physicians, nurses, and sanitary inspectors who provided periodic health services in many rural communities. The program was suspended after A.I.D. funding was terminated because of its low effectiveness and high costs. However, it did provide community-constructed health posts to which the Ministry of Health later assigned permanent auxiliary nurses.

With support from A.I.D. loans from 1971 to 1980, the Ministry of Health's program improved the physical infrastructure of rural health services. The program's most significant contribution was the creation of a new type of health worker, the rural health technician. The rural health technician was conceived of as a polyvalent, midlevel worker who would work as a change agent in rural communities. Trained in a 2-year program, rural health technicians have been effective in organizing communities to become involved in water and sanitation, nutrition, immunization and other preventive health programs. By 1980, when A.I.D. funding stopped, almost 400 rural health technicians had been trained. The effectiveness of these technicians has been limited by a lack of logistical and supervisory support. Nevertheless, the system has been effective in some regions and the program

continues with Ministry of Health funding, although the training school suspended classes in 1987.

During the 1980s, A.I.D. supported a series of pilot projects designed to improve primary health care delivery in specific regions of the country. A.I.D. support in this area began in 1979 with the Integrated System of Nutrition and Primary Health Care (SINAPS) project. SINAPS was an operations research project designed to develop training materials and to implement and evaluate several alternative primary health care methodologies. The project was implemented in several eastern departments by the Ministry of Health and the regional Nutrition Institute for Central America and Panama (INCAP). SINAPS was followed by other projects in the highlands: the Rural Health Promoter Training Research project (PRINAPS), and the Integrated Communities project.

SINAPS and PRINAPS were quite effective in demonstrating appropriate techniques of training and providing services and supervision. Many of the health workers trained through these projects continue to provide services. However, the Government failed to continue the project activities, and the materials developed from the projects have not yet been incorporated into the general Ministry of Health programs. The Integrated Communities project -- originally designed as a combined primary health care and water and sanitation project -- was not fully implemented and was plagued with problems during its first few years, in part because of changes in government. The health services component of this project was abandoned, and it currently provides support only for water and sanitation activities.

A.I.D. is currently funding a child survival project, which was not evaluated for sustainability because it is ongoing.

1.2 Water and Sanitation

The U.S. Government has provided significant levels of funding for water and sanitation projects since 1955, when SCISP began funding human resource development projects and projects for the construction of municipal water supply and sewerage systems. During the SCISP era (1952-1966) the United States provided more than $3 million for major construction projects involving supervision, technical assistance, and on-the-job training. The program also funded 2-year scholarships for masters programs in civil engineering at U.S. universities.

A series of rural water supply and sanitation projects implemented during the SCISP period, which provided gravity-fed and pumped water supplies and latrines, was one of the few water and sanitation programs whose immediate benefits were not sustained. The latrine program was clearly a failure, and it is unlikely that clean water is still being provided by the water systems.

In the mid-1960s, the U.S. Government and other donors

supported the founding of the Regional Sanitary Engineering School (ERIS). However, in the 1970's, the United States shifted its support to the National Institute for Municipal Development (INFOM). INFOM is responsible for providing technical assistance for water supply and sewerage systems in the 329 urban centers outside Guatemala City. A.I.D. supported the construction of new urban systems and provided funds for rehabilitation of systems damaged by the earthquake of 1976.

In the late 1970s and early 1980s, A.I.D. funded five water and sanitation projects managed by the private voluntary organizations CARE and Agua del Pueblo. Two of these projects are still ongoing.

With the exception of the rural projects of the SCISP period, water and sanitation projects tended to be sustained. Existing systems were maintained through national funds, and new systems were developed with external funding from other donors.

1.3 Malaria Control

In 1956, the U.S. Government, the Pan-American Health Organization (PAHO), and UNICEF, joined with the Guatemalan Government and other regional governments to begin a program to eradicate malaria. SCISP assisted in the development of the National Service for Malaria Eradication (SNEM). A.I.D. provided funds throughout the 1960s to support SNEM's program of massive spraying and treatment by hundreds of highly motivated volunteers.

By 1970 it was clear in Guatemala and elsewhere, however, that mosquito resistance to pesticides and the failure to coordinate regional efforts had made achievement of malaria eradication impossible. Both A.I.D. and UNICEF terminated their support. The Guatemalan Government continued to fund SNEM, which slowly shifted its strategy from malaria eradication to malaria control. These efforts were successful until 1976. In that year, as a result of disruptions caused by the earthquake and the failure of the Government to provide foreign exchange to purchase pesticides, the country was left unprotected for one spraying season. Malaria rates soared, and only recently have they begun to decline again.

1.4 Family Planning

A.I.D. support for family planning began in 1967; since then, four major projects have been implemented, the last of which is to be extended through 1991. Through these projects, A.I.D. has supported programs of the Ministry of Health, the private Guatemalan Association for Family Welfare (APROFAM), and more recently, the private Guatemalan Association for Family Life Education (AGES) and a for-profit private sector commercial retail sales program (IPROFASA). Although A.I.D. funding for private sector family planning activities has been continuous, support for Government

family-planning efforts ended in 1975 when the Government closed the A.I.D.-funded program in the Ministry of Health. No major family planning services were offered by the Government again until 1982. Only since 1983 have ongoing A.I.D. projects been providing support for Government programs. Until recently, most of A.I.D.'s support for Government-provided family-planning services came through APROFAM, which provided logistical support for the Ministry of Health facilities.

This experience provides considerable evidence that family planning programs in Guatemala are unlikely to be continued without A.I.D. support. Even the private sector organizations, with the possible exception of IPROFASA, could not survive without A.I.D. funds.

1.5 Nutrition Improvement

A.I.D. support for nutrition projects in Guatemala was channeled through the regional office of INCAP. These projects included a vitamin A sugar fortification project, a corn-hybrid fortification project, and a nutrition planning program, as well as support for the pilot primary health care program, SINAPS. Currently A.I.D. is funding two projects for INCAP to provide technical assistance in child survival and food assistance. Again, because these projects are ongoing, they are not included in this study.

The fortification projects did have a significant impact on nutrition levels in Guatemala. However, the sugar fortification program was suspended after A.I.D. funding ended because private producers did not want to absorb the cost of vitamin A supplements and the Government at that time refused to provide foreign exchange for importing the supplement. Recently however, the program was reinstituted.

The nutrition planning programs resulted in the creation of a nutrition planning unit within the Government's Planning Commission (SEGEPLAN). The officially approved nutrition plans prepared by this unit were never implemented, however.

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1 A.I.D. has been providing food assistance to Guatemala since 1959 under PL 480, Title II. Title I assistance was introduced in 1984 to demonstrate support for General Majia and the beginning of the process of democratization in Guatemala. The United States also provides substantial food assistance through the World Food Program.

2. ANALYTICAL FRAMEWORK AND METHODOLOGY

The analytical framework for this evaluation was based on a systems approach that considered each A.I.D. project in the

context of the larger system of which it was a part. The components of the system include (1) the conditions in the health sector before the project began; (2) the goals and objectives of the project; (3) project inputs (funds, materials, and technical assistance); (4) concurrent activities by the national government and other international donors; (5) the project implementation process; (6) project outputs in terms of human resources, physical constructions, and institution building; (7) project benefits or outcomes (the health benefits gained by the national population); (8) the status of outputs and benefits at least 3-5 years after project termination; and (9) longer term and unintended consequences of the project.

This evaluation takes a historical perspective in determining what aspects of a project were sustained after U.S. Government funding was terminated. Projects are considered to have been sustained if project outputs and benefits continued after donor support ended. Project outputs include personnel trained (such as rural health technicians and professional sanitary engineers); physical infrastructure constructed (such as Roosevelt Hospital); and institutional systems developed (such as training schools and malaria control and water and sanitation agencies). Benefits (project outcomes) are the intended or unintended positive impacts on the health of the Guatemalan population resulting from project activities (outputs). In most cases, because achievement of actual project benefits could not be determined, we could only postulate that when project outputs were sustained, they probably continued to produce benefits unless there was reason to believe that conditions influencing the effectiveness of those outputs had changed.

We examined both immediate outputs, that is outputs that were created during the life of the project and were likely to produce immediate benefits, such as water systems constructed or personnel trained, and replicating outputs, which are outputs that continue to produce immediate outputs, such as construction agencies and training schools.

For each project, we determined whether the project outputs continued to function after the life of the project and then identified the sources of funding for those outputs. We found that project outputs that were funded by national sources (private or public) after U.S. funding ceased were clearly sustained. Outputs sustained through foreign sources of funding, which was often the case for replicating outputs, were considered to have been sustained if Guatemala appeared likely to continue to receive such support in the future.

For each project, the evaluation team judged the relative degree of sustained activity after the end of A.I.D. project funding. The team then compared the contextual influences and characteristics of projects with relatively more sustained outputs with those of projects with relatively nonsustained outputs. The contextual factors and project characteristics, which were identified through previous studies and team observations, were those that were hypothesized as having an effect on project

sustainability (see Box 1).

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2 In only one case, nutrition planning, did it appear that activities had not produced benefits either during or after the life of the project. Thus, in spite of the continuation of activities, the project was judged to be unsustained.

3. WHAT WAS SUSTAINED?

There were broad differences in sustainability by type of U.S.-supported health project. Health services projects had the the most sustainable outputs, and they were sustained mainly with national rather than other donor funding. Water projects were also maintained with national funds and replicated with donor funds. Although malaria control projects were sustained with national funding, the benefits achieved during the first 5 years after the project ended were not maintained because of disruption in the insecticide spraying cycle in the year following the 1976 earthquake. Several INCAP nutrition projects were moderately sustained, but these projects were vulnerable to political changes and pressures, as well as to administrative changes in the Ministry of Health. Activities under the family planning project implemented by the Ministry of Health were not sustained. The family planning activities that do continue do so through the private sector, which relies almost entirely on continued A.I.D. financing.

Within project types there were, however, significant variations.

1. Health services. Significant aspects of three of the five major project clusters (i.e., original and follow-on projects) in this sector were judged to be sustained. Roosevelt Hospital, constructed in the 1950s, continues to function today. SCISP projects contributed to the continuing administrative structure of the Ministry of Health. The unique rural health technician program, while not as effectively sustained as it might have been, is still functioning throughout the country.

Two types of health services projects were not sustained. The mobile health units were disbanded after the project ended, and SINAPS, PRINAPS, and other small primary health care projects were also unable to produce lasting changes in health services.

2. Water and sanitation. The water and sanitation projects that were more successfully sustained than others were the urban

Box 1. Project Characteristics and Contextual Factors Hypothesized to Affect Sustainability

Contextual Factors

Natural disasters
Political environment
U.S.-Guatemalan relations
Socio-cultural contexts
Economic context
Private sector
Implementing institution
Other donors
National commitment to project goals

Project Characteristics

Project negotiation process
Institutional organization and management
  Veritcial versus horizontal structure
  Administrative leadership
  Administrative component and training

Financing

National absorption of project costs
Foreign exchange requirements
Tradeoffs among government priorities
Cost recovery
Cost-effectiveness

Project Content

Selected project design facets
Training
Technical assistance
Appropriate technology

Type of project

Community participation

Project effectiveness

Projects of the SCISP period, the urban projects implemented by the National Institute for Municipal Development in the 1970s, and the recent rural projects run by private voluntary organizations. Less effectively sustained were the rural projects of the SCISP period and more recent projects implemented by the Ministry of Health. Latrine components of the water and sanitation projects have been the least sustained component of all rural water and sanitation projects.

3. Malaria Control. Malaria projects were relatively well sustained after U.S. funding ceased in 1970. After the 1976 earthquake, however, the failure to import insecticides for one spraying season, a decision beyond the control of the health sector, resulted in a dramatic increase in the incidence of

malaria which has only recently started to decline again.

4. Family planning. The least successfully sustained of the health delivery projects have been the family planning projects, particularly the public sector activities, which ceased when A.I.D. support ended. Even the private sector activities of APROFAM require continuing A.I.D. funding.

5. Nutrition. Of the INCAP nutrition projects, sugar fortification and corn hybrid projects were relatively well sustained, although the sugar fortification program was suspended for several years during the 1980s. Although nutrition planning has continued beyond the life of the project, it has produced no appreciable benefits either during the life of the project, nor subsequent to the end of the project; therefore, it was judged to be unsustained. As mentioned above, the SINAPS project, which was implemented with INCAP technical assistance, was also not sustained.

The project outputs that were most likely to be sustained were trained personnel and physical infrastructure, while administrative systems were the least likely to be sustained. Often this lack of system sustainability severely restricted the effective use of the infrastructure and the ability of personnel to maintain the effectiveness of their activities. And because weakly administered project activities were unlikely to produce the expected benefits, prospects for the overall sustainability of the projects were also reduced.

4. CONTEXTUAL FACTORS

Several characteristics of the context in which projects are designed and implemented may affect their sustainability after A.I.D. funding ends. These factors are relatively fixed and usually not subject to the control of project designers or managers, but because of their potential impact on project sustainability, they should be taken into account during project design and implementation.

In Guatemala, many contextual factors have been relatively constant and are likely to have had a similar impact on all projects. For instance, the low level of national funding for the health sector limits the effectiveness of almost all projects. The impact that these constant and universal contextual factors in Guatemala have had on project sustainability can be determined only through comparative analysis with project experience in other countries characterized by other measures on these factors.

4.1 Natural Disasters

The devastating earthquake of 1976 had serious consequences for economic and health conditions in Guatemala. Many international agencies, including many private voluntary agencies, provided

immediate relief and initiated a variety of community development projects in the ensuing period. The massive reconstruction effort, coordinated by the National Reconstruction Commission, successfully restored many services and facilitated reconstruction throughout the most damaged areas. The Ministry of Health was temporarily reorganized to respond to the emergency, and some departments, such as the Department of Environmental Sanitation, were given new life with the inflow of foreign emergency funds.

Surprisingly, the emergency created by the earthquake appears to have had a relatively positive effect on the sustainability of several projects. For example, water and sanitation projects received follow-on funding from other donors that allowed some A.I.D. project activities and benefits to continue. The rural health technicians were able to demonstrate their effectiveness and their value as community organizers, contributing to the decision by the Government at a later time to continue that program.

The earthquake had some influence on malaria control projects, however it was probably not the determining factor. Although the incidence of malaria increased dramatically in the period following the earthquake, the increase was due primarily to the failure to spray during 1977. There is also little evidence to suggest that the relative lack of sustainability of the family planning and the INCAP nutrition projects was influenced by the earthquake.

Since natural disasters only occurred infrequently and did not have a consistent impact, we concluded that this contextual factor was not a significant determinant of sustainability for these cases.

4.2 Political Environment

During the period of U.S. Government funding in the Guatemalan health sector, Guatemala has experienced several changes in regime, beginning with a 10-year period of moderate reforms under Juan Jose Arevalo (1944-1950) and Colonel Jacobo Arbenz Guzman (1950-1954). A U.S.-sponsored coup in 1954 was followed by a long period of unstable military governments. Although elections were held during this period, most were fraudulent. The military governments rarely undertook reform initiatives, although there was a brief period under General Kjell Eugenio Laugerud (1974-1978) during which some reforms were possible. By and large the military governments were responsible for several cycles of particularly widespread repression, including a brutal period beginning in 1978 under General Romeo Lucas Garcia (1978-1982), which accelerated in the early 1980s under General Efrain Rios Montt (1982-1983), in which many rural communities were decimated.

Since 1954, there have been only two civilian presidents. The first, Julio Cesar Mendez Montenegro (1966-1970), assumed office with the understanding that the military would be allowed to act autonomously in its brutal counterinsurgency campaign and that no

major reforms would be implemented. The current president, Christian Democrat Marco Vinicio Cerezo (1986- present) came to office on an explicitly modest reformist platform; however, his ability to implement reform policies has been severely restricted by the continuing military influence and the enduring influence of a small, economically dominant oligarchy.

We hypothesized that the following political factors might reduce the potential for project sustainability: (1) regime instability, (2) limited implementation capacity, (3) a military rather than a civilian regime; (4) low ideological commitment to the welfare of the poor, and (5) the presence of strong interest groups opposed to project objectives or to redistribution of resources in the health sector.

Regime instability results in political uncertainty, which is likely to weaken any project. However, since Guatemala has been politically unstable throughout the period of U.S. support, this hypothesis cannot really be tested (see Table 2). To the extent that instability leads to a change in regime that offers new opportunities for initiating projects, instability might tangentially affect sustainability, as in family planning projects.

And, of course, particular projects may be affected by specific regime changes. The SINAPS project was dramatically weakened when the Rios Montt Government took power and most of the counterpart technical officials in the Ministry of Health were either removed or quit.

The Guatemalan public sector controls the smallest portion of the gross domestic product of any country in Central America, which severely limits state capacity to implement health programs. Again, because this factor has been relatively constant, its influence in Guatemala can be determined only through cross-country comparison with states whose government controls a larger share of national resources.

Guatemala has had only three periods of civilian rule since 1942: the Arevalo/Arbenz period (1944-1954), which led to a suspension of U.S. assistance; the Mendez Montenegro period (1966-1970), during which the military continued to dominate and no major reforms were attempted; and the current Cerezo Government (1986-present). However, there is no evidence in the cases we evaluated to suggest that these governments were any more likely to sustain project outputs than were military governments.

Regime commitment to the welfare of the poor has generally been low in Guatemala, except during the Arevalo/Arbenz period and, to a lesser degree, within the Cerezo Government. There was also a brief period of very modest military reformism during the Laugerud period (1974-1978). There is no evidence that reformist

Table 2. Regime Instability Events Chronology, 1942-1987

Year	Event	Consequences
1942	Ubico Dictatorship	Classical Liberalism/coffee oligarchy
1943		
1944	October Revolution	Middle class reformist movement
1945	Arevalo elected	Democratic reformist regime, adopts
1946		series of moderate reform measures
1947		
1948		
1949		
1950		
1951	Arbenz elected	Pursues more radical reforms
1952	Agararian Reform Law	Growing Polarization
1953		
1954	Counter-revolution	Conservative military regime under
1955		Gen. Castillo seizes power and rolls
1956		back reforms
1957	Castillo assassination	Ydigoras Fuentes succeeds Castillo
1958		
1959		
1960	Attempted coup	Progressive officers defeated and purged
1961		Guerilla movement emerges
1962		
1963	Coup	Col. Peralta seizes power
1964		
1965	New Constitution	Institutionalizes "limited democracy"
1966	Mendez elected	Restricted reformist with military
1967		counterinsurgency
1968		
1969		
1970	Arana "elected"	Conservative military rule with
1971		constitutional facade
1972		
1973		
1974	Laugerud imposed	Modest "opening" and mild reformism
1975	Guerrillas revived	
1976	Earthquake	Local self-help groups organize
1977		
1978	Lucas "elected"	Repression of center reformist option
1979		again closed
1980		
1981	Near Civil War	
1982	Coup: Rios Montt	Demobilization, state terror
1983	Coup: Mejia	Military corporatism
1984	Constitutional Assembly	Military responding to pressures
		for democracy
1985	Cerezo elected	Civilian moderate reformist regime
1986		
1987		

regimes are any more or less likely than nonreformists, to sustain project activities after a project ends.

Interest group pressures have been significant in several of the projects examined and may be the only one of the political hypotheses that was confirmed. Active political opposition by the Catholic Church, other conservative interest groups, and (at least in the past) the University has had a major negative impact on family planning projects. Opposition by physicians, another important political interest group, has limited the effectiveness of the rural health technicians program, which would probably have been greater both during and following the project had physicians not opposed it. Physicians have also been able to pressure the Government to increase their salaries and to direct the majority of health resources into physician-oriented hospital services, to the detriment of most A.I.D.-supported health projects.

4.3 U.S.-Guatemalan Relations

It was also hypothesized that relations between the United States and Guatemala could affect project sustainability, particularly for projects implemented or completed during periods of conflict such as the Arbenz period (1950-1954) or during the Carter Administration, when Carter's human rights policy called attention to Guatemala (1977-1980). Although conflict was hypothesized to adversely affect sustainability, projects during these periods, (e.g., the Roosevelt Hospital and other SCISP projects in the 1950s and the rural health technician and water and sanitation projects in the late 1970s) were all relatively well sustained.

Changes in U.S. Government development policies in the health sector were also examined for their effect on sustainability. Activities during the SCISP period were initially motivated by interests related to the war effort. Roosevelt Hospital was planned as an evacuation hospital, and campaigns to control malaria and typhus reflected at least partly a concern with making the region more accessible to U.S. troops. After World War II, SCISP evolved into a more development-oriented and cooperative effort under the Point Four program and the International Cooperation Agency (ICA), A.I.D.'s predecessor agency. The Alliance for Progress brought a shift from functionally defined health projects to economic infrastructure development programs. In the 1970s, under a mandate to reach the "poorest of the poor," A.I.D. focused its efforts on a variety of primary health care programs and abandoned malaria control projects. The focus again shifted in the 1980s, with the current emphasis on child survival projects.

These shifting policies have had a burdensome effect on some projects, such as malaria control. The Government of Guatemala was forced to assume all malaria program costs when both A.I.D. and UNICEF refused to continue funding because of a general policy change.

However, most of the policy shifts were not so abrupt or radical as to seriously undermine the project activities. For

instance, the transition from SCISP to national institutions in the 1960s was not easy, but it did not undermine the basic sustainability of the projects. In some cases, such as water and sanitation, A.I.D. basic policy has not changed significantly and therefore has provided a consistent basis for support in this health subsector. In other areas, such as the rural health mobile units and malaria eradication projects, the policy shift may have been away from an inappropriate technology that should not have been sustained.

Although changes in USAID/Guatemala personnel or policies might have had some impact on implementation of some projects (such as the continuous presence of Dr. E. Croft Long during the design and early implementation of the rural health technicians project) and some maladroit family planning consultants may have contributed to the general resistance to family planning projects, it is unlikely that such factors have had much effect on the long-run sustainability of these projects. Some projects have been sustained without the presence of stable and dedicated health officers, and others have continued despite incompetent U.S. counterparts.

4.4 Sociocultural Context

Guatemalan society continues to be rigidly divided along cultural, regional, and class lines, with the greatest distinction being that between the indigenous indian culture and the dominant ladino culture that has had a particularly adverse effect on health systems. A long history of distrust and repression has made communication and service delivery by the ladino-dominated state only moderately effective in reaching the large indian rural population. Consistent with this division has been an urban/rural imbalance in health services. Guatemalan society is also rigidly divided along class lines. With one of the least egalitarian distributions of income in Latin America, Guatemala has been dominated by a few wealthy families who control most of the economic resources of the country.

Several programs appear to have been affected by the differences in indian and ladino cultures, demonstrating the need for adapting projects to differing ethnic contexts. Latrine projects appear to have been particularly difficult to implement in indian areas, in part because of cultural barriers to their use. Nutrition and family planning projects have had to be designed, as they would in any cultural context, with regard to cultural practices and beliefs.

At the same time, projects that were designed to respond to and accommodate cultural differences -- such as the program for rural health technicians, who have had to be sensitive to community norms in order to organize effectively -- were more likely to be sustained.

Other social issues, such as urban/rural and class inequalities, as well as low levels of education, were less

clearly related to project sustainability. Projects have tended to be directed toward the disadvantaged rural areas and toward the lower classes and the less educated. Thus, because this factor is relatively constant across projects, it does not appear to have a role in distinguishing sustained from nonsustained projects.

Sexual inequality is an important factor that adversely affects family planning projects. Although much of the opposition to family planning comes from the Church and interest groups, many women are prevented from seeking family planning services because of their subordinate role in Guatemalan society. Because of the limitations that it imposes on women, sexual inequality may have a role in undermining the sustainability of family planning projects.

The sociocultural context appears to have been important for sustaining appropriately designed projects. It may also have undermined the sustainability of family planning projects and latrine projects.

4.5 Economic Context

Prior to the 1981 world recession, the Guatemalan economy experienced consistently high annual growth rates, averaging 3.8 percent during the 1950s, 5.5 percent during the 1960s and 5.7 percent during the 1970s. As a result of the world recession, Guatemala's economy went into a severe and sustained recession from which it has only recently begun to recover (see Figure 1).

Since economic growth generally makes more resources available to the government, it might be expected that projects that terminate during periods of growth would have a greater possibility of receiving national funding. However, projects for which A.I.D. funding terminated during the long period of economic growth up to 1980 included both sustained and nonsustained projects (see Figure 1). Most projects implemented during the 1980s are still ongoing and so can offer little evidence of the impact of the recent economic decline on the sustainability of terminated projects. Nonetheless, some support for the hypothesis is provided by the fact that A.I.D. funding for many of the nonsustained projects ended during the recession of the early 1980s -- with the important exception of the rural health technician program and some recent water projects.

The share of GNP that is controlled by the public sector might also affect project sustainability. A growing public sector might be expected to provide funds to take over projects as foreign sources of support are withdrawn.

Although Guatemala's public sector has remained extremely small even by Central American standards, with total public spending at just 12.3 percent of GNP in the 1970s it did experience some growth between 1976 and 1981. Real expenditure data for 1970-1986 show no systematic changes in relative priority between Ministry of Health and other public sector spending. The data

suggest that regular trade-offs have occurred from one part of the public sector to another, with Ministry of Health losses in one year followed by gains in the next. On average, Ministry of Health expenditures constituted 8.3 percent of total annual public sector expenditures. Because there were no systematic changes in the Ministry of Health's share of public expenditures, the hypothesis of increased sustainability for projects whose funding terminated during periods of increased Ministry resources could not be tested.

Figure 1

Finally, the evaluation team considered the effect of the relative priority assigned by the Ministry of Health to curative and preventive programs. It was hypothesized that more national resources might be budgeted to take over donor-supported projects, most of which are oriented toward preventive programs, during periods when the Ministry of Health was increasing its budget allocations to preventive care programs. Thus the team expected that as Ministry of Health priorities shifted toward preventive and away from curative programs, A.I.D.-funded projects would become more sustainable.

Growth in preventive care orientation was relatively steady throughout the 1970s. During this period, A.I.D. funding ceased for three successfully sustained projects (malaria control, INFOM water and sanitation programs, and the sugar fortification program) and for one nonsustained project (Ministry of Health family planning program). However, during the 1965-1970 period, when curative care was increasing in priority, some projects were also sustained (urban water and sanitation, SCISP health services, and malaria control) and one was not (mobile health units). In the brief period of resurgence in curative care priority in 1980-1983, A.I.D. funding for the rural health technician project (sustained) and nutrition planning projects (nonsustained) ceased.

Because the evidence on sustainability varied from one period to the next, the testing of our hypothesis was inconclusive. Clearly these simple tests are insufficient for drawing any generalizations concerning the hypotheses related to economic factors. From the economic analysis carried out during this study, it appears that economic factors are too complex to provide simple indicators related to sustainability (see Economic Analysis case study available under separate cover). Given the economic indicators available, we can only conclude that there is insufficient evidence to confirm or deny our hypotheses.

Over the last 4 to 5 years, A.I.D. has tried to strengthen Guatemala's weakened economy through the use of Economic Support Funds. Since 1983, an A.I.D. Cash Transfer program has injected the quetzal equivalent of $160 million into the Guatemalan economy, with another $80 million budgeted for the next fiscal year. These funds have not been used in the health sector

activities examined here. However, the high levels of Economic Support Fund programming, along with the rapid growth in international donor support for Guatemalan projects in all sectors raises serious questions about the sustainability of any activities of the Guatemalan Government were this funding to stop. Many government and donor officials are expressing fears that should donor priorities shift from supporting Guatemala or should Economic Support Funds be reduced, there would be severe repercussions for projects and the general functioning of the Guatemalan Government.

4.6 Private Sector

The involvement of private sector health providers and the existence of an effective network of private voluntary organizations (PVOs) to implement A.I.D. projects are contextual factors that were hypothesized to influence the sustainability of projects.

The private health sector in Guatemala includes private hospitals and clinics (including church-sponsored health facilities), pharmacies, traditional healers, midwives, and injeccionistas. Some A.I.D.-supported projects incorporated elements of this sector (e.g., empirical midwives) into health delivery in projects in relatively effective ways. For the most part, however, these services are in competition with the public health services that receive most of the A.I.D. funding. Private health providers and service organizations tend to operate independently of their public counterparts and do not appear to have had a significant impact on the sustainability of U.S.-supported projects.

Also within the private sector are the PVOs and other private sector institutions that serve as implementing agencies for A.I.D. and other donors. Since the 1976 earthquake, an unusually large number of PVOs have been active in Guatemala; however, many were forced to leave during the repression of the early 1980s. A.I.D. has rarely taken advantage of these organizations for implementing its health projects in Guatemala. Except for the long-term use of CARE and Catholic Relief Services in food distribution and feeding programs, only a few small recent A.I.D.-sponsored projects are using PVOs -- Agua del Pueblo, Project Hope, and a few others. One problem is that most PVOs are so small that they would have difficulty managing a project. There have been several attempts to establish an umbrella association of PVOs, which could manage and coordinate PVO activities and provide an appropriate channel for A.I.D. support. However, to date no clearly institutionalized coordinating body has emerged.

Other private institutions, such as sugar producers, have implemented some A.I.D. projects, but with only modestly sustained results.

The sustainability of A.I.D.-supported projects in Guatemala does not seem to have been affected by private sector health providers or by PVOs.

4.7 Implementing Institutions

A.I.D. projects can have a major impact on the structure and capacity of implementing institutions. In most cases, at least initially, A.I.D. projects have been implemented within the existing institutional structures in Guatemala. The Ministry of Health is the major implementing agency for health projects. However, other institutions have also received A.I.D. support, including several Government water and sanitation agencies, the University of San Carlos, and private voluntary organizations involved in family planning, water and sanitation, and nutrition projects.

It was hypothesized that six characteristics of implementing institutions could undermine sustainability: (1) rapid turnover and low leadership capability among top officials, (2) centralization of decision-making, (3) fragmentation of authority and responsibility, (4) low skill levels among personnel, (5) conflicting organizational goals, and (6) in the case of PVOs, competition for funds or beneficiaries.

1. Top officials. Ministers of Health have changed 23 times in the last 42 years, a high rate of turnover that has usually been reflected throughout the top level of the Ministry. The most stable position in the Ministry has been that of sub-director general (Dr. Orlando Aguilar, for example, occupied the post throughout the 1960s). The general pattern of rapid turnover among top officials appears to have been consistent throughout the 1942-1987 period. In contrast, the continuity of the technical officials from the subdirector down through the normative divisions was interrupted only once -- during the Rios Montt administration in 1982, when many officials were removed or resigned. This turnover in 1982 appears to have severely undermined the sustainability of INCAP's SINAPS project.

Other implementing institutions have had more stable leadership. Several institutions responsible for sustained projects, such as INFOM, ERIS, CARE, and Agua del Pueblo, have had relatively stable leadership. However, family planning projects managed by APROFAM, which has had the same top official since its founding, continue to depend on A.I.D. funding.

It seems likely that the instability of top officials has undermined the sustainability of projects implemented by the Ministry of Health. However, some projects, such as the rural health technicians program, have achieved some degree of sustainability, despite the rapid turnover. Stability of officials cannot guarantee sustainability if other factors are not favorable.

2. Centralization. Despite a long-term effort beginning in 1969 to decentralize the Ministry of Health through a regionalization process, the Ministry continues to be highly centralized. Even routine decisions about budgetary allocations and personnel usually have to be approved at the highest levels. The Ministry has experimented

with various organizational structures (including brief periods during which regional offices oversaw the area and district offices) and with different arrangements for vice ministries and subdirector generals. These structural changes may have added to institutional instability, but they have done little to decentralize decision-making. Centralization of decision-making was reasonably constant over the entire period of U.S.-supported projects.

There is little evidence that other public institutions (e.g., SCISP, INFOM, and SNEM) have been much more decentralized than the Ministry of Health. However, because many PVOs are relatively small, they are more likely to be closer to the service delivery base than are larger, more complex organizations; therefore PVOs might have organizational structures that permit them to be more responsive to community needs.

Although centralization imposes a variety of implementation problems that delay projects and often make them less responsive to different needs at lower levels of the institution and within the communities, it is not clear whether this factor affects the sustainability of projects. Some projects implemented by centralized institutions have been sustained while others have not.

It can reasonably be argued that in the case of the malaria control projects, the centralization of SNEM decision-making was effective for project implementation and sustainability. Few observers, however, have provided evidence that centralization was a determinant of sustainability in any particular case.

3. Fragmentation. Fragmentation refers to the tendency of an organization to be divided into separate, vertically structured, program-determined subunits. There is little interaction or coordination among these subunits, and they often have little understanding of each other's activities. There was almost universal recognition of the fragmentation within the Ministry of Health, where even subunits, such as UNEPAR (the agency responsible for implementing some rural water and sanitation projects) are further fragmented by project activity. Often foreign donors directly contribute to this fragmentation by requiring that their project be implemented by a separate unit within the Ministry and by imposing separate reporting, budgetary, and administrative routines.

Some vertically structured institutions, such as SNEM and INFOM, are less fragmented, and most PVOs are too small to be fragmented. When working on similar types of projects, these institutions were relatively more effective in sustaining project activities than was the fragmented Ministry of Health.

There is almost universal agreement that fragmentation has inhibited the effectiveness of projects and contributed to their lack of sustainability. An environment in which little is known of a project, in which few officials other than those directly involved in the project are aware of its objectives and activities, in which few programs depend on coordination with project

activities for their own continuation, and in which implementation usually requires continual identification with foreign-defined project activities is not likely to be conducive to continuation of project activities.

An excellent example of the effect of such fragmentation is the Department of Environmental Sanitation (DSA), which ran a variety of foreign-supported projects but was superseded in the mid-1970s by a newly created water and sanitation unit, UNEPAR. DSA collapsed until it received renewed international funding after the 1976 earthquake.

Perhaps an even clearer example of the adverse effects of fragmentation on sustainability is the case of the Division of Maternal and Child Health. This division received major funding from A.I.D., UNICEF, and UNFPA, primarily for family planning projects, in the 1960s and early 1970s. During this period, it became the most important and powerful division within the Ministry of Health. However, once these donors shifted their funds to other implementing agencies, the division was reduced to a relatively small and ineffective unit. Only recently has it become a major implementing unit, dependent again on several sources of international funding for child survival programs. Many fear that this shaky institutional base for current programs will again collapse if foreign funding does not continue to favor the division.

The rural health technician program is one of the few sustained projects that was implemented by the fragmented Ministry of Health. It is clear that fragmentation contributed to the continuing lack of integration of this program into the Ministry of Health. And the program appears to have been sustained despite fragmentation. Roosevelt Hospital was well sustained even in the fragmented environment, probably because of the high national commitment to urban hospital care. The more integrated institutions, such as INFOM and SCISP, were more conducive environments of sustained projects.

Based on the evidence, therefore, we can conclude that a fragmented institutional environment was not conducive to sustaining projects in Guatemala.

4. Low skill levels in relation to project needs. Institutions that have been successful in developing the technical skills of their staff appear to have been more conducive environments for sustaining projects. Water and sanitation institutions have been staffed with well-trained sanitary engineers, often trained at the U.S.-supported Regional Sanitation Engineering School (ERIS), and through fellowships to other schools. SNEM was also sucessful in developing high skill among its staff. The skills of personnel involved in both water and sanitation and malaria control projects improved considerably under SCISP.

Many of the personnel involved in the early stages of the implementation of several Ministry of Health projects were highly skilled. In particular the rural health technicians project attracted a highly skilled and motivated team of teachers for the

Quirigua school. However, because of a general lack of trained personnel in the Ministry of Health, it has been difficult to maintain the effectiveness of the training program. Perhaps more important, the skill levels of many of the doctors, nurses, and administrators whose participation would have made the rural health technicians' field activities more effective varied greatly. Thus, although the rural health technicians continued to provide services, they clearly would have been more effective had the skill levels of Ministry of Health personnel been higher.

High skill levels alone, however, cannot ensure the sustainability of a project. Family planning and nutrition projects were implemented through institutions whose personnel were relatively highly skilled (in the case of INCAP, internationally renowed nutrition professionals). However these skills could not overcome the other factors that undermined the sustainability of these projects.

Nevertheless personnel skill levels appear to have been particularly important for sustainability. Low personnel skill levels within the implementing agency clearly undermined sustainability, and high skill levels favored sustainability. However, high skill levels alone cannot overcome other project weaknesses or contextual influences undermining sustainability.

5. Conflicting organizational goals. Organizations with multiple goals that conflict with the objectives of the projects they are implementing appear to be less conducive to sustainability. Conflict of goals was most apparent within the Ministry of Health, which heavily favors urban-based, curative care rather than the primary care activities emphasized by most of the A.I.D.-supported projects. Only the construction of Roosevelt Hospital was consistent with the Ministry's bias toward curative care.

Another implementing organization with somewhat conflicting goals is INCAP. The major division is between those with a theoretical research orientation on nutrition issues of international academic interest and those emphasizing applied nutrition and the provision of project-related technical assistance. A.I.D. has contributed to this conflict by funding both types of projects, although recently its focus has shifted more toward projects that emphasize applied nutrition. Other implementing agencies for INCAP projects include the National Planning Commission and the sugar producers, which tended to have goals that conflict with those of the projects they were implementing.

Most of the other implementing institutions have organizational goals that tend to be consistent with the goals of their projects. But consistency of goals does not seem to guarantee sustainability. For example, APROFAM's family planning projects are not sustainable without foreign donor funds, even though its organizational goals are consistent with those of the projects it implements. However, the existence of conflicting organizational goals in institutions responsible for implementing projects does appear to inhibit sustainability.

6. Competition among PVOs. Another hypothesis was that competition among PVOs might undermine the sustainability of the projects they implement. CARE and Agua del Pueblo both receive funds from A.I.D. and work in the same regions. Similarly, many other PVOs work in the highland areas and seek funds from A.I.D. and other sources. However, there seems to be no evidence that this competition has affected sustainability.

4.8 Other Donors

When several international donors are active in the health sector, it was hypothesized that projects would be more sustainable if donors coordinated their support through a division of labor or sequenced follow-on projects rather than competing on similar projects ("bandwagon" effect).

There were two clear cases of the bandwagon effect in this study. One was the malaria control programs of the 1960s, in which A.I.D., PAHO, and UNICEF pursued a strategy of malaria eradication. In order to maintain the program when all three donors pulled out in the early 1970s, the Government had to absorb a significant financial burden. Nevertheless, malaria control activities and benefits continued with national funding after donor support ceased.

The second case of an international bandwagon effect involves the current child survival projects. Again, many donors are pursuing similar strategies and assuming major responsibility for funding those activities. The total foreign funding level for the next 5 years exceeds the Government's own funding capacity. Should all donors shift their support to other activities, as they did with malaria eradication, it is unlikely that the Government of Guatemala could fund all the child survival project activities.

Nevertheless, there are several cases of successfully sustained projects whose replicable outputs have continued with follow-on support from other donors. Follow-on support appears to be crucial to the sustainability of many replicable outputs, such as institutions that construct water and sanitation systems; however, since support has been continuous and shows no signs of declining in the near future, it is impossible to determine whether national funds would be provided in the absence of foreign support.

Although there are other donors supporting family planning projects (UNFPA) and nutrition projects (foundations), there was little evidence in the cases we reviewed to show that these donors would assume a major follow-on role for A.I.D. projects.

Because of the mixed evidence found in the cases we reviewed, our analysis of the effects of donor "bandwagons" and donor sequencing on sustainability is inconclusive.

4.9 National Commitment to Project Goals

National commitment is defined as the consensus among decision-makers and important interest groups in the Guatemalan health sector that the goals and objectives of a project are of national priority. Conversely, major conflict among decision-makers or interest groups concerning these goals is taken as evidence of a lack of national commitment. The issue of national commitment is distinct from that of government funding in support of project activities, which is considered as a factor related to project financing.

Projects that had high levels of national commitment were the malaria control projects, the water and sanitation projects, and the Roosevelt Hospital construction project. The rural health technician project initially faced significant opposition from important health sector interest groups, and although this opposition lessened, there is still no agreement among these groups that the program should receive high priority. Nutrition programs, although they have not generated major opposition except from sugar companies, have not gained sufficient support to become a national priority. Family planning programs, however, have been seriously impeded by the conflict generated by opposition interest groups.

It is clear that national commitment to project goals is crucial to project sustainability. Only one project, the rural health technician project, was significantly sustained without a major national commitment.

5. PROJECT CHARACTERISTICS

Project characteristics, unlike contextual factors, can be significantly altered or controlled by project designers and managers. Because of this possibility for greater control, lessons related to the effect of project characteristics on sustainability should have specific applicability to project design and the implementation of ongoing projects.

For each project characteristic, the Guatemala cases show significant variation, thus allowing for clearer evaluation of the hypotheses than was possible for contextual factors. It should be kept in mind, however, that these project characteristics might, in some cases, be contingent on contextual factors.

5.1 Project Negotiation Process

Projects that are perceived as having been imposed by foreigners would seem to be the least likely of all donor-supported projects to be sustained after foreign funding ceases. Such projects not only lack initial national support but are also likely to generate nationalistic resistance throughout the duration of the project. Conversely, projects that are designed through a negoiation process process based on mutual respect between A.I.D. and the Government

of Guatemala would seem to be more likely to have donor-host country consensus on goals, objectives, and implementation plans and would thus be more likely to be sustained. This hypothesis is consistent with the finding cited in Section 4.9 that national commitment to project goals is more conducive to sustainability.

The cases in our evaluation appear to confirm the hypothesis. The least sustained projects -- family planning and some nutrition projects -- tended to be perceived as imposed from outside. Some of the more sustained projects -- Roosevelt Hospital and rural health technicians -- were developed with strong Guatemalan participation. Roosevelt Hospital was almost entirely a Guatemalan initiative and the rural health technician project was developed through a lengthy process of interaction between A.I.D. and Guatemalan officials.

During the SCISP period, health services, malaria control, and water and sanitation projects appear to have been initiated with considerable Guatemalan involvement. Over this long period, Guatemalan counterparts were trained and assumed an increasingly greater role in administering the programs and setting priorities. Interaction between A.I.D. and Guatemalan officials appears to have continued during the design of the later water and sanitation and malaria control projects.

5.2 Institutional Organization and Management

Three project organizational characteristics were hypothesized as likely to affect the sustainability of project activities and benefits: (1) vertical versus horizontal design, (2) managerial leadership, and (3) administrative systems and training.

5.2.1 Vertical Versus Horizontal Design

Projects with a separate, vertical implementing unit are often considered more likely to be effective because they can focus resources and activities on the goals of the project with-out undue involvement of the health sector bureaucracy. However, vertical projects also are vulnerable. Such projects often rely heavily on foreign funding, making it harder to gain sufficient national funding when foreign sources of funding cease. Vertical projects also tend to generate institutional jealousy, particularly if they are perceived to have more resources and higher paid staff than other services that are not receiving A.I.D. funds. These vulnerabilities suggest that vertical projects might not be sustained.

In vertically organized projects, the administrative hierarchy is established outside the usual national implementing agency or as an autonomous unit within the existing structure and has its own narrowly defined goals and objectives. Units are autonomous if they are outside the usual chain of authority involving communication and coordination between the project's administrative hierarchy and various units and levels of the national agency's

administrative structure.

Most U.S.-supported projects in Guatemala were vertically organized programs. Family planning projects in the Ministry of Health were run as separate, privileged units within clinics and were administered by a separate hierarchy within the Maternal-Child Health Division. When the program was altered to involve APROFAM in training and distribution, the program's vertical structure was retained, but the privileged character of the program was eliminated. The nutrition planning project was integrated into the National Planning Commission, but it was not integrated into the institutions implementing the project.

The rural health technicians project was also implemented through a vertical unit attached directly to the Minister's office rather than to the Director General of Health Services. This implementing office, including a separate training unit at Quirigua, never developed the capacity to coordinate and communicate adequately with the health service network within which the rural health technicians were to function. This lack of integration has plagued the program since its inception, creating confusion over the role of the rural health technicians and conflicts with other health delivery personnel in the Ministry of Health system. On several occasions this conflict almost led to the termination of the rural health technician training project.

Water and sanitation and malaria control projects had a slightly different organizational design. Although they were implemented by vertically organized institutions, such as SNEM and INFOM, they were not run as separate projects within those organizations. Rather, they were fully integrated into those vertical national institutions.

Although not funded by the U.S. Government, an example of a vertical project that was much more fully integrated than any of the A.I.D. projects was the Rural Health project funded in the 1950s by PAHO and UNICEF. The project established a pilot health center in Amatitlan and a series of training and education programs. The pilot project provided a model that was adopted by the Ministry of Health as it extended a network of health centers throughout the country. The project was fully sustained after PAHO and UNICEF funding stopped and was fully integrated into the implementing institution through the Directorate General of Health Services.

We conclude that vertically structured projects that function relatively autonomously from the normal Ministry of Health system are less likely to be sustained than those that are integrated into the national system. Thus, although there were no clear-cut examples of horizontally structured projects, those vertically organized projects that most closely approached horizontal integration were more likely to be sustained. An exception was the rural health technicians project, which was moderately sustained despite its failure at integration with the health service network within which it was to function. However, this failure clearly contributed to the program's less than optimal effectiveness and threatened the existence of its training component.

5.2.2 Managerial Leadership

Leadership is often crucial to the success of projects. In most countries, there are examples of determined and qualified individuals who succeed in creating and managing effective projects despite considerable adversity. We expected that projects with more stable and qualified leaders -- both among A.I.D. staff and Guatemalan counterparts -- would be more likely to be sustained than projects with rotating or inadequate leadership.

In general this hypothesis was supported by the cases in our evaluation. The SCISP period, which generated the malaria eradication, water and sanitation, and several health service projects that were sustained, was characterized by relative stability and the high quality of U.S. and Guatemalan leaders. For example, one well-qualified Guatemalan official remained with SNEM for many years. The rural health technician project was managed by a relatively stable team of Guatemalan health officials and a capable A.I.D. manager. Agua del Pueblo has also been characterized by effective leadership.

The less successful water and sanitation projects of the 1950s, managed by the Department of Environmental Sanitation, and the initial CARE project were plagued by poor leadership. The Ministry of Health's family planning project also suffered from inadequate leadership and high turnover among A.I.D. staff and Guatemalan counterpart officials.

5.2.3 Administrative Systems and Management Training

If institutional constraints limit the effectiveness and sustainability of projects as was discussed above, then we might expect that projects that improved the administrative systems of implementing agencies and that provided administrative training would be more sustainable than would projects without such institution-building components. However, we did not find conclusive evidence to support this hypothesis.

The earliest U.S. Government-supported projects had significant administrative development and management training components. Malaria eradication, water and sanitation, and health services projects during the SCISP period all benefited from such project components. In more recent projects, the emphasis on institutional-development components has lessened. The lack of an administrative component in the rural health technicians project may have undermined its capacity to integrate project activities into the implementing units of the Ministry of Health. Also, few of the INCAP projects contained administrative systems or management training components.

Conversely, even though administrative training was part of the family planning projects, it could not ensure the sustainability of these projects.

While the inclusion of an administrative development component did not appear to have improved the likelihood of sustainability, it might be useful to evaluate the magnitude of that assistance in relation to sustainability. For example, of the projects reviewed, the administrative component of all but the SCISP projects was too small to have been likely to have had a major impact on the implementing institution. The SCISP projects that had major components designed specifically to strengthen administrative structures were sustained.

5.3 Financing

We considered five separate financing aspects of projects that might have had an impact on sustainability: (1) progressive absorption of project costs in the national government budget, (2) recurrent demands for foreign exchange (3) required shifts in priorities from established programs, (4) cost-recovery mechanisms, and (5) cost-effectiveness.

5.3.1 National Absorption of Project Costs

It is often expected that projects whose recurrent costs are progressively absorbed into the national budget are more likely to be sustained than are those that are externally funded at high levels throughout their duration. Unless the national government has had time to absorb successively larger portions of project recurrent costs in its national budget, it is unlikely that it will be able to allocate resources to project activities when external funding is terminated. By contrast, budget line items, especially for personnel, are seldom eliminated from year to year, making it difficult to dismantle projects that have an established budgetary commitment.

This hypothesis was generally confirmed by our case studies. The recurrent costs of the major health service projects were supported by significant levels of national funding during the life of the projects. For example, 88 percent of Roosevelt Hospital construction costs was funded from national sources. Although A.I.D. funded the renovation costs for turning Quirigua hospital into a training school for rural health technicians, most of the recurrent costs of the training program were progressively assumed by the Ministry of Health.

In water and sanitation projects, recurrent maintenance costs were absorbed by the municipalities, the Ministry of Health, and the communities. The investment costs for constructing new water and sanitation systems have not been absorbed, however, and continue to be met by external donors. Because international donors are likely to continue funding these investment costs for the foreseeable future, there has been no pressure on the Government to plan to absorb these costs.

The malaria control projects clearly demonstrate the

importance of planning for national absorption of project costs. The original loans established a fixed relationship between A.I.D. and Guatemalan Government contributions of 35 percent and 65 percent, respectively. However, as a result of the uncertainty of A.I.D. funding, the Government began to absorb an increasingly larger portion of malaria control costs during the life of the project. This increasing assumption of costs probably contributed to the willingness and capacity of the Government to eventually absorb the program and subsequently to expand it.

Conversely, projects in which recurrent costs were not progressively absorbed tended not to be well sustained. For example, there was no significant Government absorption of commodity costs of family planning projects, nor did the projects provide for continuation of the subsidized incentives that were provided to personnel.

Based on the evidence, we conclude that national absorption of project costs is important to project sustainability.

5.3.2 Foreign Exchange Requirement

The limited availability of foreign exchange is often a particularly severe financial constraint on national budgets, often forcing governments to establish priorities among imports, especially in the public sector. We expected, therefore, that projects that impose a continuing, long-term demand for large amounts of foreign exchange would be less likely to be sustained.

Recurrent demand for foreign exchange was significant for some projects that were not sustained, although in terms of national accounts, the amounts may have been quite low. For nutrition and family planning projects, the foreign exchange necessary for importing contraceptives and vitamin supplements may pose a demand for foreign exchange that the host government may not be willing or able to assume. For example, for a period during the 1980s, nutrition programs involving vitamin A supplementationwere suspended when no foreign exchange was made available for importing vitamin A. The rural mobile health units project of the1960s also required substantial amounts of foreign exchange for repairs, gasoline, and medicine.

After an initial period of high investment costs, much of which did require a significant amount of imports, the foreign exchange demand of successfully sustained projects was quite low. The rural health technician program creates little recurrent demand for foreign exchange, except for the purchase of gasoline and repair parts for their motorcycles, and thus is not much affected by foreign exchange constraints. Maintenance of water and sanitation programs requires little foreign exchange since most of the materials are produced locally.

Two sustained projects, however, did have major foreign exchange requirements that did not prevent but may have restricted sustainability. Roosevelt Hospital's need for medicine, equipment,

and repairs is a constant drain on foreign exchange, but as is the case in most countries, the foreign exchange requirements of the hospital are usually met, in part to avoid conflict with hospital beneficiaries and health care providers. Malaria control programs require substantial foreign exchange for insecticide imports. The Government of Guatemala was willing to assume these costs at the end of the malaria eradication projects; however, it eventually shifted its strategy from eradication to control to lower the requirement for insecticides and reduce the foreign exchange burden.

Based on the evidence of the case studies, we conclude that foreign exchange requirements did not severely limit sustainability when other factors favored project continuity.

5.3.3 Trade-offs Among Government Priorities

Because of limited budget resources, national funding of new project activities may require a shift of resources from already established budget items. Projects requiring a significant shift of resources from already established programs would seem to be less likely to be sustained than projects that do not require significant trade-offs.

In health services, the balance between preventive and curative priorities might have been affected by the projects funded by A.I.D. For example, the Roosevelt Hospital project placed a major burden on the Ministry of Health's budget, shifting resources from preventive toward curative care. However, later health services projects -- for example, the rural health technicians project and SINAPS -- would have required a significant shift toward preventive care had they been fully implemented by the Government. Although the rural health technicians project was continued in an environment of a more rapidly growing curative sector, it did not impose a significant trade-off during the life of the project. That the project was not expanded after A.I.D. funding terminated probably reflects the unwillingness of the Ministry of Health to make such a trade-off. The failure of SINAPS to become a model for the rest of the Ministry of Health also reflects the Ministry's preference for curative care projects.

For water and sanitation projects, maintenance of existing systems does not require significant trade-offs. However, were foreign funding for new construction to end, the demand for budget substitution would be great. Because this eventuality has not yet occurred, it is impossible to measure the effect.

In malaria control projects, Government assumption of the total costs of the A.I.D. and UNICEF projects initially appeared to threaten other existing programs. Growth in both the national and Ministry of Health budgets by the end of the projects, however, made obvious trade-offs unnecessary. Since that period of growth, malaria control programs have reached a plateau and thus have not imposed new substitution demands.

Family planning and INCAP nutrition programs tended to be too small to require significant trade-offs.

Because of the mixed evidence, we could neither support nor reject our hypothesis.

5.3.4 Cost Recovery

Current A.I.D. policy considers that the inclusion of cost recovery mechanisms is likely to enhance project sustainability. Based on this assumption, we expected that projects that were able to recover a significant portion of their costs would be more likely to be sustained.

Projects with some cost recovery component included the rural mobile health units project of the 1960s, which established a 0.25 quetzal fee for each consultation; the vitamin A sugar fortification project which allowed costs to be passed on to the customers; the social marketing component of some family planning projects, which entailed the sale of contraceptives; and water-user charges under the water projects. With the exception of sugar fortification and, to some degree, water projects, these mechanisms rarely produced significant revenues. Even the tariffs collected for water systems are insufficient to cover costs of maintaining the systems.

Because cost recovery mechanisms were able to cover only a very small portion of recurrent project costs and because projects with cost recovery mechanisms were not any more likely to be sustained than projects without them, we conclude that cost recovery, as implemented in these cases, did not contribute to sustainability.

5.3.5 Cost-Effectiveness

We expected that projects that used their resources more efficiently would be more likely to be sustained than those that were less efficient in resource use. Although it is difficult to assess cost-effectiveness in most of the cases that we evaluated, informants suggested that some projects were generally perceived to be more costly than necessary, given the effectiveness of their activities. Accounting and monitoring requirements of most donor agencies provide some check on the use of resources, at least to the extent that they limit the potential for corruption.

Cost-effectiveness analyses of some of the family planning project activities showed that cost-effective measures were used to improve service delivery. The shift in malaria strategy from eradication to control also represented a more cost-effective means of reducing the incidence of malaria. The INCAP nutrition fortification projects were considered to be a cost-effective means of reducing endemic goiter and improving nutrition levels.

By reputation, A.I.D.-funded water projects were perceived

to be unnecessarily costly compared with other water projects, and the INCAP nutrition planning project is viewed, even within INCAP, as not having been particularly cost-effective.

While the rural health technicians provide relatively low-cost preventive services, the cost of their training and salaries, compared with other alternatives to physicians' services (e.g., auxiliary nurses or unpaid promoters) is often cited as evidence of a relatively costly program.

Based on this review there is some evidence to suggest that cost-effectiveness during the life of the project has a positive effect on sustainability, but the evidence is insufficient to draw definitive conclusions.

5.4 Project Content

5.4.1 Selected Project Design Factors

While we did not attempt to examine all aspects of project design, we identified several facets of project design that we believed could affect sustainability. For this study, we hypothesized that clarity of goals, length of implementation period, size of project budget and the creation of visible benefits and high demand among beneficiaries would be aspects of project design that might have an effect on project sustainability.

Projects with clearly defined goals have usually been implemented more effectively, but our study produced little evidence that clarity of goals affects sustainability. Among the early SCISP projects and the nutrition planning projects, there were projects with vague goals that continued and others that did not. Projects with relatively specific goals (e.g., family planning and water and sanitation projects) also had different degrees of sustainability. Furthermore, although the malaria project goals were initially well-defined for an eradication strategy, the ability of the Malaria Division to change its strategy from eradication to control determined its long-term sustainability.

A longer project implementation period might affect sustainability by fostering support among beneficiaries, bringing about a more enduring impact, developing an institutional interest in maintaining established routines, or expanding institutional capacity. However, this study does not support this hypothesis. While long-term projects of the SCISP period were relatively well sustained, so were short-term INCAP fortification projects and projects implemented by PVOs. The duration of projects was not related to sustainability.

We expected that projects with small budgets would impose fewer obstacles to national absorption of project costs and therefore be more sustainable. However, no such relationship appeared in our study. Large projects were just as likely to be

sustained as small projects.

We also expected that projects designed to produce visible and desired benefits and generate demand for services from beneficiaries would be more sustainable. Again, our studies produced mixed evidence. For example, the Roosevelt Hospital and the water projects tended to produce high demand from beneficiaries, whereas the nutrition and family planning projects did not. Two sustained projects, the malaria control projects and the rural health technician project, did not appear to generate significant popular demand. We conclude that this characteristic is not significantly related to sustainability in the case of Guatemala.

There is little evidence that any of the selected design factors included in this study was related to sustainability.

5.4.2 Technical Training

Many of the U.S.-supported projects involved significant technical training programs. We expected that trained personnel would be more likely to be sustained than other aspects of a project, especially if the project-trained personnel had good prospects of finding salaried positions at the end of their training. Training components of the projects examined included both professional training, often at overseas institutions, and in-country professional and paraprofessional training, such as the rural health technicians school and short courses in family planning for auxiliary nurses.

It appears that the technical training programs in fields in which relevant employment opportunities were available were most likely to be sustained and to contribute to the sustainability of the rest of the project. Those trained under the professional training components of projects during the SCISP period (malaria eradication, water and sanitation, and health services) provided long-term professional and managerial leadership that maintained project activities. In the area of family planning training, the prospects for employment were not particularly good in the Ministry of Health, but opportunities were available in APROFAM clinics.

The rural health technicians project offers an interesting view on this issue. The center of the project was the training school in Quirigua. During the life of the project, all rural health technicians who received training were offered employment by the Ministry of Health. However, after A.I.D. funds stopped, the prospects for Ministry employment were reduced because the number of available positions was not expanded to accommodate new graduates. Although most rural health technicians have found alternate employment, often in other A.I.D. projects, there is concern that the system cannot absorb the continuing number of technicians entering the job market. Responding to this concern, the Ministry of Health suspended rural health technician training in 1984; however, it was expected to renew classes in 1988. Again, the sustainability of the rural health technician project

is the exception that proves the rule: training programs that produce graduates with good prospects for employment are more likely to be sustained.

5.4.3 Technical Assistance

We hypothesized that projects in which the technical assistance team successfully established Guatemalan counterpart capacity would have put in place the human resources necessary to maintain project activities. Moreover, we expected that two factors would contribute to the success of establishing counter-part capacity by increasing the opportunities for training counterparts: a large technical assistance team and long-term technical assistance (or intermittent, short-term technical assistance over a long period).

Long-term technical assistance was provided during the SCISP period in malaria control, water and sanitation, and health services projects. By most reports, this technical assistance was very successful in developing capable counterpart capacity, but it is unclear whether the technical assistance team was large throughout the period. However, there was a permanent core team, and many short-term consultants were brought in periodically.

Most subsequent A.I.D. projects in these areas, including the rural health technicians project, received continuing short-term technical assistance but did not provide long-term technical assistance. In many cases, other donors, especially PAHO, provided long-term technical assistance within vertical institutions, such as SNEM or INFOM, that implemented A.I.D. projects. Since donor-supported Ministry of Health programs tend to be fragmented, it is unlikely that technical assistance from other donors would offer significant support to A.I.D. projects within the Ministry of Health.

INCAP has provided significant long-term technical assistance in nutrition planning and currently is coordinating technical assistance on the child survival project through the Division of Maternal and Child Health in the Ministry of Health. But the long-term technical assistance did not make nutrition planning particularly sustainable, and the sustainability of current activities cannot yet be evaluated.

Recently, Guatemala has tended to resist technical assistance and has forced several consultants from PAHO and A.I.D. to leave the country, charging that they were taking too active a role in implementation. This response by the Government is inhibiting the provision of technical assistance on current projects; however, its impact on project sustainability is yet to be determined.

The evidence on technical assistance suggests that long-term technical assistance, as in the SCISP period, or periodic assistance provided over a long period is conducive to sustainability.

5.4.4 Appropriate Technology

Appropriate technology is a highly debated issue. A specific technology may be considered universally appropriate or appropriate in one context but not in another. Thus, for example, the malaria eradication technology was considered universally appropriate when it was first introduced, but as conditions changed, malaria control rather than eradication came to be considered the appropriate technology. The latrine projects are an example of a technology that is appropriate in one setting (e.g., in ladino communities) but not in another (e.g., indian communities) at least at a certain point in time.

Other technologies that have been considered inappropriate at times include nutrition planning, rural health technicians, some contraceptive methods, and an emphases on hospital-based health care. As this list suggests, it is difficult to determine the appropriateness of technology, particularly since the definition of what is considered appropriate can change.

While our case studies suggest that an inappropriate technology might damage a project, it is not at all clear that even highly inappropriate technologies (e.g., malaria eradication vis a vis malaria control) have prevented the continuation of a program.

5.5 Type of Project

As noted earlier, health services, water and sanitation, and malaria control projects tended to be continued after A.I.D. funding ceased, whereas family planning and INCAP nutrition projects -- were less likely to be sustained. Throughout this analysis, we have tried to analyze all types of projects in terms of their characteristics. However, we expected that there might be other, not yet identified project characteristics that might be the decisive factor in determining sustainability.

Since some health services, water and sanitation, and nutrition projects were sustained whereas others were not, it is unlikely that these project types are inherently more or less sustainable than other types. Although malaria control projects were sustained in Guatemala, the study of health project sustainability in Honduras found that malaria control projects were not sustained. Thus it cannot be said that malaria control projects are inherently more sustainable than some other types of projects.

Family planning projects, however, were not sustainable in Guatemala or Honduras. These two projects suggest that there are inherent difficulties in sustaining this type of project.

5.6 Community Participation

We expected that projects that successfully promoted community participation and responded to community-defined needs would be more likely to be sustained. This hypothesis assumes

that community demands are considered in decisions to continue project activities and that projects that elicit meaningful community participation might be more effectively implemented and more likely to generate benefits.

Projects that had some degree of community participation were the rural health technicians project, rural water and sanitation projects (except those of the SCISP period), malaria control projects, SINAPS, and rural mobile health units. Of projects that did not have community participation, including family planning, Roosevelt Hospital, and INFOM water and sanitation projects, some were sustained while others were not. These examples suggest that community participation did not guarantee sustainability.

5.7 Project Effectiveness

Effective projects were defined as those with a reputation for achieving expected goals and objectives with a relatively efficient use of resources. It was expected that such projects would be more sustained than projects that were considered ineffective.

By reputation, projects that were considered to be more effective included malaria control, water and sanitation, fortification of corn and sugar, SINAPS, Roosevelt Hospital, and APROFAM's family planning program. Projects that have been viewed as less effective include the Ministry of Health family planning programs and nutrition planning projects. In part because of the failure to fully integrate rural health technicians into the Ministry of Health, and not because of their well-regarded training program, the rural health technicians project was viewed as only moderately effective.

It is clear then that projects with a reputation for effectiveness were more likely to be sustained.

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3 Many other aspects of technical assistance may be relevant to sustainability, e. g., professional competency of technical assistance team, language abilities, and prior experience in LDC settings. However, we did not explore all these characteristics in the current study.

6. CONCLUSIONS

There is clear evidence that significant activities and benefits from U.S.-supported health projects in Guatemala over the last 45 years have been sustained. This evaluation demonstrates that some contextual factors and project characteristics were related to project sustainability.

6.1 Contextual Factors and Project Characteristics Related to Sustainability

Contextual factors are less subject to control by project designers and managers; however, because of their importance to project success and sustainability, they must be taken into account during project design and implementation. Of the contextual factors found to affect sustainability of health projects in Guatemala, national commitment to project goals and support from influential groups in the health sector positively affected sustainability. Characteristics of implementing institutions had an adverse influence on sustainability when the organization was fragmented, with conflicting goals and an inadequately trained staff. Sociocultural differences adversely affected sustainability when they were not taken into account and had a positive influence when they were.

The other contextual factors examined -- natural disasters, political environment, U.S.-Guatemalan Government relations, economic changes, the private sector, and donor coordination -- were either not sufficiently related to sustainability or did not have sufficient variation to provide evidence of their impact on sustainability.

In contrast, project characteristics are controllable elements that, when properly considered during project design and implementation, can enhance project sustainability. Characteristics that were important to the sustainability of U.S.-supported projects in Guatemala were the following:

-- Project effectiveness: Visibly effective and efficient achievement of project goals

-- Institutional organization and management: Projects integrated into the normal administrative structure of the implementing agency rather than vertically organized projects, as well as projects with stable, highly qualified leadership

-- Financial characteristics: Projects that provided for progressive absorption of recurrent costs by the national budget

-- Project content aspects: Projects that provided significant training at a professional or paraprofessional level, especially when employment prospects for trainees were good, and projects that provided long-term technical assistance

-- Project negotiation: Projects designed through a process of mutual respect in which A.I.D. and the Guatemalan Government reached consensus on project goals, activities, and implementation plans

The other project characteristics examined -- foreign exchange requirements, shifts in priorities from established programs, cost recovery, cost effectiveness, project design, appropriate

technology, and community participation -- did not appear to be as important for sustainability as those listed above.

6.2 Policy Implications

From the central conclusions of this evaluation, we can derive five lessons that would seem to be of particular importance in the design and implementation of sustainable health projects in Guatemala.

1. Respect national priorities and national involvement in project design.

2. Enhance the administrative effectiveness and capacity of the implementing agencies, and integrate project activities into those institutions. Avoid vertical projects.

3. Include a strong technical training component for professionals and paraprofessionals, and technical assistance that builds counterpart capacity.

4. Design project financing to encourage gradual national absorption of recurrent project costs during the life of the project.

5. Design and implement projects to ensure that their effectiveness in achieving their goals and efficiency in using their resources are perceptible to all participants -- implementing institutions, relevant government agencies, and beneficiaries.

APPENDIX A

METHODOLOGY

The primary objective of the series of comparative historical evaluations of sustainability in U.S.-supported health projects is to provide information on how project design and implementation can be improved to increase the likelihood of the continuation of project activities and benefits after U.S. funding is terminated. This effort requires a practical methodology for assessing factors associated with the continuation of activities and benefits of past projects. The secondary objective of this series, therefore, is to develop a methodology for examining sustainability.

1. CONCEPTUAL APPROACH

This sustainability study was conceptualized and carried out as a set of parallel retrospective case studies of U.S.-supported projects in the health sector in Guatemala. Health sector projects were defined to include those in health services, family planning, malaria programs, nutrition, and water supply and sanitation. Because sustainability was defined as the continuation of at least

3 years after U.S. funding had ceased, we selected projects for which U.S. funding had terminated by August 1984.

The conceptual framework of the Guatemala study is based on a systems analysis approach, which examines project sustainability within the overall context of the health system in Guatemala, especially the development, delivery, and use of services in the health sector. Each project was examined in terms (1) the conditions in the health sector before the project began; (2) the goals and objectives of the project; (3) the inputs in funds, materials, and technical assistance provided by the project; (4) concurrent activities by the national government and other international donors; (5) the implementation process of the A.I.D. project; (6) project outputs in terms of human resources, physical constructions, and institution building; (7) project outcomes: the health benefits gained by the national population; (8) the status of outputs and outcomes at least 3 years after the project terminated; and (9) longer term and unintended consequences of the project. Outputs that led to an improvement in health and that could be identified as having resulted from project inputs were considered to have been benefits of the project (Blumenfeld 1986).

The series on the sustainability of U.S.-supported health projects is considered to be a pioneering effort requiring continuing modifications of its methodology as research efforts evolve. However, to maintain comparability across the studies in the series, these modifications are to be refinements of the methodology developed for the first study in this series (Honduras) rather than broadscale changes that would nullify comparability. The Guatemala study took the methodology developed in the Honduras study (Bossert et. al. 1986) as a point of departure and developed it further. The methodology of the Honduras study was itself based on the prior conceptual work of Blumenfeld (1986), Buzzard (1987), Blumenfeld and Pipp (1985), Godiksen (1986), Lieberson (1986), and others.

The Honduras evaluation identified nine major factors as potential influences on the sustainability of Agency for International Development (A.I.D.) projects: national commitment to project goals, project negoiation process, institutional organization of the project, financing, technical assistance, donor coordination, training, community participation, and project effectiveness. For each factor, a set of hypotheses was developed, based on literature reviews and discussions with A.I.D. officials and other informants.

In the following section, we describe the advances in methodology that were made during the Guatemala study.

2. VARIABLES EXAMINED

2.1 Dependent Variables

The Guatemala evaluation further advanced the methodology of

the Honduras study by developing a more precise and consistent definition of sustainability -- the dependent variable in the study. As the investigation progressed, it became clear that the definition of what constituted continuation or sustainability and the criteria for determining continuation varied from one type of project to another. Therefore, team members responsible for a particular project type (health sevices, water and sanitation, malaria programs, family planning. or nutrition) had to determine precisely what constituted sustainability for that type of project. Because most projects contained some elements that were continued and others that were not, it became difficult to draw general conclusions. Each case study attempted to further refine the precision of the criteria used to define project sustainability. However, because there was not enough time to develop a clear consensus on broader criteria that would enable consistent analyses across project types, it was finally decided that the general criterion for determining sustainability would be the continuation of at least one significant element or activity of a project 3 years after the end of U.S. funding.

The focus of our study was the extent to which the outputs and benefits of health projects, not the projects themselves, were continued; that is, the extent to which the information, systems, and practices developed under a project continued to benefit the Guatemalan health sector. However, a wide variety of types of project elements and activities potentially could continue after cessation of U.S. support. We therefore found it useful to categorize these elements and activities to facilitate analysis and discussion. The categories of potentially sustainable project elements and activities listed in Box 1 were found to be useful by several team members in the Guatemala study. They provide a complex checklist for assisting the analyst in considering the potential outputs of each project and evaluating each component separately. However, there was insufficient time for the team to examine the different relationships between these elements and the independent variables (the factors hypothesized to affect sustainability). This is an important area for further development in subsequent evaluations.

2.2 Independent Variables

The second major area of methodological advance in this evaluation was the further refinement of the independent variables (factors that were expected to affect sustainability), beginning with the nine that were identified in the Honduras study.

The first major change was to distinguish between contextual variables of the project, which were not under the control of project designers and managers, and project characteristics, which could be manipulated by project designers and managers. This categorization allows for a more complex analysis of each type of variable.

Box 1. Types of Project Elements or Activities

That Could Be Sustained

1. Personnel: Specific types of trained personnel (trained through overseas participant training, formal in-country training, and on-the-job training), their employment and activities, and training programs

   -- Are they working in the health sector?

   -- Are they working in the project implementing institution?

   -- Are they working in positions and carrying out activities appropriate to their specific training?

   -- Are they receiving sufficient support to perform their function as planned?

2. Physical Infrastructure

   -- Does it still exist?

   -- Is it being well maintained?

   -- Is it being used by the implementing agency or other institution for its original purpose or for other purpose in keeping with the project or sector objectives?

3. System Characteristics

   -- Are institutions and subsystems still functioning, including training programs established under (or modified through) the project (s)?

   -- Are organizational structures still intact?

   -- Have system capacities been maintained or expanded?

   -- Are functions and activities still being performed, and if so, how effectively and efficiently?

   -- Have resources been allocated to support these efforts?

Second, the evaluation team developed a larger, more detailed set of variables than the nine identified for the Honduras study. Although the expanded set of variables was considered more appropriate for evaluating project continuation, the risk was that the analysis would become too complex to be useful to project managers and designers who often seek short checklists to assist them in their practical decision-making. The evaluation team felt, however, that the expanded set would be a more appropriate basis for drawing conclusions; this set could later be summarized and simplified on the basis of empirical data. The expanded list of variables is presented in Box 2.

3. HYPOTHESES

The hypotheses considered in this study were based on the hypotheses developed for the Honduras sustainability study and modified on the basis of the Honduras study experience, a review of A.I.D. evaluation reports and other documents on projects in Guatemala, and extensive team discussions during the first weeks of fieldwork in Guatemala. The modified hypotheses are presented in Table A-1. The table distinguishes between hypotheses that were thought likely to enhance sustainability and those that were thought likely to inhibit sustainability. They reflect the emphases that emerged from the evaluation team's discussions in the field and the working documents.

4. DATA COLLECTION AND ANALYSIS

The principal sources of information for this study were documents and selected individual and group interviews. The information obtained was first cross-verified through internal reviews and discussions among team members. It was further cross-verified through and in-country workshop at the conclusion of the fieldwork.

Box 2. Expanded List of Variables Potentially Affecting Sustainability

Contextual factors

- -- Natural disasters
- -- Political environment
- -- Bilateral relations
- -- Sociocultural influences
- -- Economic context
- -- Private sector (including private voluntary organizations)
- -- Implementing institution
  - - Leadership
  - - Centralization
  - - Integration
  - - Skill levels of personnel
  - - Goal conflicts
  - - Competition among private voluntary organizations
  - -- Other donors (policies and coordination)
  - -- National commitment to project goals

Project Characteristics

- -- Project negotiation process

-- Institutional organization and management
  - Vertical versus integrated project structure
  - Administrative leadership
  - Administrative systems and training
-- Financing
  - National absorption of project costs
  - Foreign exchange demand
  - Demand for a shift in priorities from established programs
  - Cost recovery
  - Cost-effectiveness
-- Content factors
  - Project design
  - Training
  - Technical assistance
  - Appropriate technology
-- Type of Project
-- Community participation
-- Project effectiveness

Table A-1. Summary of Hypotheses for the Guatemala Sustainability Study

Contextual Factors	Decrease the Likelihood of Project Continuation	Increase the Likelihood of Project Continuation
Natural Disasters	Occurrence of natural disasters	
Political Context	Regime instability Low State capacity Military regime	
	Low commitment to the welfare of the poor	
	Strong interest group opposition	
U.S.-Guatemalan Relations	Difficult relations between the United States and Guatemala	Good relations between the United States and Guatemala
	Changes in U.S. Government development policies related to the health sector	
Sociocultural Context	Marked sociocultural divisions	
	Marked urban-rural inequality	

	Marked gender inequalities	
Economic Context		U.S. funding ended in a period of economic growth
		U.S. funding ended in a period of public sector growth
		U.S. funding ended in a period of growth of Ministry of Health share of government budget
Private Sector and Private Voluntary Organizations	Private sector opposition or competition with project goals and objectives	Private sector support of project goals or objectives
		Private voluntary orgs. available to implement project activities
Implementing Institutions	Rapid turnover and poor leadership of top officials	
	Centralization of decision-making	
	Fragmentation of authority and responsibility (relatively vertical, program-determined subunits with little interaction, coordination, and communication among them)	
	Low skill levels of personnel outside of the project on whom the project's implementation depends	Personnel selection based on skills, motivation, and job description
Contextual Factors	Decrease the Likelihood of Project Continuation	Increase the Likelihood of Project Continuation
	Personnel decisions motivated by political or patronage considerations	
	Conflicts between organizational goals and project objectives	
	Competition among PVOs for funds or beneficiaries	
Other Donors		Project components and

		activities are congruent w/ health sector policies & activities promoted by internat'l hlth agencies and donors at the time of continuation decisions
		Availability of donor funds for health projects in the country at the time of project continuation decisions
		Coordination among donors to to avoid excessive concentration of donor resources on a single area
		Coordination among donors to provide ongoing funding of project activities
National Commitment		Consensus among important interest groups and decision-makers in the hlth sector that project goals and objectives are a national priority

Project Characteristics	Decrease the Likelihood of Project Continuation	Increase the Likelihood of Project Continuation
Negotiation Process	Project designed with little consideration for Guatemalan participation and a feeling that project is being imposed by A.I.D	Project negotiations on mutual respect, leading to consensus on project goals, objectives, and implementation plans
Institutional Organization and Management		
Vertical/Integrated Structure	Project organized with vertical implementing units, especially if projects receive preferential funding	Projects integrated into existing national institutions
Administrative Leadership	Projects with high turn-over among leaders and with incompetent leaders	Projects with stable, well-qualified leadership (both A.I.D. project managers and Guatemalan counterparts)

Administrative Systems and Administrative Training	Projects that neither improve the administrative systems of the executing agency nor provide administrative training	Projects that improve the administrative systems of the executing agency and provide administrative training
Financing		
National Absorption	Projects receiving high levels of external funding throughout the project lifetime	Projects for which recurrent costs are gradually absored by the national budget
Foreign Exchange Requirement	Projects imposing repeated and long-term demands for large amounts of foreign exchange	
Tradeoffs Among National priorities	Projects requiring large changes in national budgetary priorities	Projects not requiring large changes in national budgetary priorities
Cost Recovery		Projects with capacity to recover a significant portion of their costs
Cost-Effectiveness	Projects with high costs in relation to the effectiveness of their outputs and benefits	Projects that use their resources efficiently
Content Aspects		
Project Design		Projects with clearly defined objectives Projects designed with a long implementation period Projects with low total budgets Projects that produce visible benefits and generate significant demand among beneficiaries
Project Characteristics	Decrease the Likelihood of Project Continuation	Increase the Likelihood of Project Continuation

		Projects that provide for ethnic and gender balances in all aspects of project implementation
Training	Projects with technical training components, especially in fields for which the likelihood of later employment was high	Projects without a training component
Technical Assistance		Projects that include a large technical assistance team Projects that increase the technical assistance (or repeated short-term technical assistance over a long period of time)
Appropriate Technology	Projects that use technology inappropriate to the Guatemalan context	Projects that use technology generally considered appropriate
Type of Project	Family planning projects	Health sevices project
	Nutrition projects	Water and sanitation projects
	Malaria projects	
Community Participation		Projects that stimulate considerable levels of community participation and respond to community-defined requests
Effectiveness		Projects that have a reputation for achieving objectives with cost effective and efficient use of project resources

Two of the U.S. members of the team (the team leader and the public health physician) had extensive relevant experience in Guatemals, and one of the family planning specialists had monitored Guatemalan projects for A.I.D. The three Guatemalan physicians on the study team have decades of relevant experience in the Ministry of Health and in international agencies. The information and the contacts that those team members had prior to the study were very important to the development of this study. The nurse educator who carried out a study on the present working conditions of Guatmala's

rural health technicians (which involved survey responses of 274 technicians and personal interviews with 46 technicians in the field and 7 Ministry of Health officials involved in the rural health program) has extensive experience in health and health manpower work in Central America. In addition, the evaluation team's economist worked closely with a former Guatemalan government official who has held high-level positions in several areas that were important to the economic analysis of the projects.

Several computerized searches of relevant bibliographic data bases were performed to obtain bibliographic materials. Study team members also had access to A.I.D. and Regional Office for Central America and Panama (ROCAP) files, the Ministry of Health library, and the libraries and files of some of the interviewees. The principal documents used by the study team were A.I.D. and predecessor agency documents (project papers, project reports, project evaluations, audits), Guatemalan Government documents, and reports of other donor agencies.

Based on the set of hypotheses (discussed in Section 4 of this appendix), the study team developed a list to questions as a guide for conducting the interviews (see Box 3), which were carried out in the United States and Guatemala by individual team members. The leader, who has extensive experience in conducting this type of investigation, observed at least some of the interviews of almost all team members.

Interviewees were chosen from among accessible individuals who had either been involved in a relevant project or were knowledgeable of the project's impact and sustainability or the context in which it was implemented. Most interviews were carried out either person to person or by telephone; others were carried out in small groups.

Based on documentation review and information from interviews team members drafted retrospective case studies in each of the five areas comprising U.S. assistance to the Guatemalan health sector -- health services, family planning, malaria, nutrition and water sanitation. Finally, a draft final report was prepared based on a qualitative comparative review of the findings of the case studies, drawing conclusions about the hypothesized relationships between the independent variable and the sustainability of project output and benefits.

These drafts were circulated and a workshop was held where the study's findings were reviewed and discussed in small work groups and plenary session prior to the team's departure from Guatemala. Workshop participants included Guatemalan Government officials, USAID Mission officials, representatives of other agencies and individuals with relevant expertise. The reports were revised based on this additional source of information.

Box 3. Interview Question Guide

Contextual Factors

Natural Disasters

1. Were there any major events, such as earthquakes, that influenced project activities and benefits during or after the life of the project?

Political Factors

1. What effect, if any, did a change in government have on the project with which you were associated and its prospects for continuation after A.I.D. funding ended? Please give concrete examples of how changes in the government affected your project.

2. Did you find significant differences in the way different governments treated the project? To what would you attribute variations in treatment?

3. Did you find that various organizations, groups, or important individuals influenced the initiation, implementation, or continuation of the project? Which groups or individuals were the most important and how did they exercise their influence?

Bilateral Relations

1. Were you aware of any way in which the general state of relations between the United States and Guatemala influenced the evolution and prospects for sustaining the project?

2. Were there any significant changes in the project that were believed to have occurred because of shifts in A.I.D. policy or funding? Did these changes affect prospects for project continuation after A.I.D. funding ended?

3. Did you ever feel that changes in the Mission or changes of Mission Director or project officer affected the project and its possible continuation?

Sociocultural Context

1. Did social inequalities (e.g., ethnic, class, gender) influences the effectiveness and continuation of project activities and benefits?

2. Did economic or regional inequalities influence the project?

3. Were there any major social or demographic changes that had significant influence on the project.

Economic

1. Describe the general economic environment that existed before, during, and after the project.

2. Were there any ways in which these factors influenced the design and execution of the project?

3. Was the project modified in any way as a result of these conditions?

4. Were the resources of the public sector in general and the Ministry of Health in particular expanding, remaining unchanged, or declining during this period?

5. Were budgetary priorities within the Ministry of Health favorable to project activities?

Private Sector

1. Did activities in the private health sector (e. g., doctors, pharmacies, HMOs) affect project activities and benefits? Could the project have taken the private sector into account more effectively?

2. Were private voluntary organizations available for implementing project activities?

Implementing Institution

1. In your opinion did policy, personnel, or organizational changes at the top levels of the Ministry of Health affect the initiation, implementation, or continuation of projects supported by A.I.D. ? Can you give examples?

2. What are the effects of changes in the levels of Ministry funding on the project and its continuation?

3. Who is more important to the success and continuation of a project, the Minister or the administrator directly responsible?

4. Did the centralization (or decentralization) of decision-making in the Ministry influence project effectiveness during or after the life of the project?

5. Did lack of communication and coordination among units within the Ministry of Health influence project effectiveness during or after the life of the project?

6. Did the implementing agency have access to sufficiently trained personnel to support important project activities?

7. Were other goals and objectives of the implementing agency (Ministry of Health or private voluntary organization) in conflict with the goals and objectives of the project?

8. Were many private voluntary organizations competing for the same sources of funds and for the same beneficiaries?

Donor Coordination

1. How did the support of international donors for project objectives and activities influence decisions about project continuation?

2. Did the availability of alternate international sources of funds influence decisions on project continuation?

National Commitment to Project Goals

1. Who in Guatemala supported the goals and objectives of the project and who opposed them?

2. Were there major conflicts or debates?

3. How widespread was project support or opposition?

PROJECT CHARACTERISTICS

Project Negoiation Process

1. Describe the process by which the project was negoiated.

2. Who participated in the process?

3. Was the project a Guatemalan initiative, or was it brought in by A.I.D.?

4. What was the tone of the discussions during the negoiation? Was there mutual respect and give and take?

5. Are there people who view the process differently than you do?

Institutional Organization and Management

1. Vertical Verus Horizontal Design

   How was the project administered? Did it have its own chain of authority or was it under the Director General or a regional official?

   Could the project have been better integrated into the Ministry of Health?

   Were communication linkages open between project officials and officials in the Ministry of Health?

   Did the project generate jealousies within the Ministry of Health?

   Did the project receive special attention or resources for nurses and physicians (or other equivalent personnel) ?

2. Managerial Leadership

   Who headed (or who were the counterparts for) the project during the life of the project?

   Did changes of leadership affect the project?

   Were project leaders effective managers and promoters of their projects?

3. Administrative Systems and Training

   Did the project contribute to administrative improvements in the Ministry of Health (or other agency) ?

   What happened to people who were trained overseas?

Was training effective?

Financing

1. National Absorption of Project Costs

   What percentage of total recurrent costs had the Ministry of Health absorped by the end of the project?

   Were there any differences in the absorption rate for different kinds of cost categories (salaried positions, materials, equipment, training)?

   Was it anticipated that alternate sources of funding, such as other donors, beneficiaries, other levels of government, or private voluntary organizations, would continue to finance the project after A.I.D. funding ended?

2. Foreign Exchange Component

   Did the project depend on the continuing importation of major materials and supplies?

   Were local or regional sources for these imports unavailable or was importation a project requirement?

3. Tradeoffs Among National Priorities

   Would the project reduce the funding available for other Ministry of Health programs, such as curative care?

   Were financing requirements and mechanisms at the end of the project essentially the same as those during the project?

4. Cost Recovery

   Did the project include means of recovering costs through user fees or other charges?

5. Cost-Effectiveness

   Was the project able to achieve its goals without waste and corruption?

Content Aspects

1. Project Design

   How clearly defined were project goals and activities?

   Were there a large number of beneficiaries, and did they see the benefits as important enough to demand continuation of the project?

   Did project design provide for ethnic and gender balance in all aspects of project implementation?

2. Training

What type of training program (on-the-job training, long-term or short-term courses) was included in the project? What was its size? Was it continued after the project funds ceased? How has it changed over time?

Were there sufficient salaried positions for the newly trained workers to assume after their training?

Were beneficiaries trained in project activities?

3. Technical Assistance

What was the role, size, and duration of the technical assistance provided under the project?

Were Guatemalan counterparts trained to take over project activities after the project technical assistance team left?

Was technical assistance acceptable to the national Government during project negotiation and implementation, or was it imposed by A.I.D. ?

4. Appropriate Technology

Was the specific technology appropriate for achieving project goals in Guatemala

Community Participation

1. Was the project successful in developing a high level of community participation? Did the community provide labor and materials? Was a health committee formed? Did the community actually establish priorities for health activities in the community?

Project Effectiveness

1. Was this project able to achieve its goals and objectives?

2. What was the major achievements and major failures of the project?

7. CONCLUDING ANALYSIS

Based on a comparative review of the findings of the five case studies, this sustainability study attempted to draw general conclusions about the hypothesized relationships between each independent variable and the sustainability of project outputs and benefits.

It was agreed that for the development of this and future studies in this series on the sustainability of U.S.-supported health projects, a more reliable methodology is required to guide the analysis. As a first step in the development of this methodology, the evaluation team prepared the analytical matrix presented in Tabel A-2.

Table A-2 lists 18 projects, 1 of which 11 had significant elements that were sustained and 7 had no significant continuation. The sustained projects received a "yes" and the unsustained projects received a "no" in the sustainability column. The table also lists the variables (contextual factors and project characteristics) and subelements of the variables (numbers listed below the variables) and rates their significance to the sustainability of each project: Positive effect = +, negative effect = -, no effect = 0, and no information = N.

The first step in the analysis was to determine the total number of testable cases for each variable. Testable cases were defined as the total number of possible cases (18) minus the number of cases for which no information was available (see Total Testable Cases in the table). For example, in the case of the "natural disaster" variable, the evaluation team gave 13 projects an "N", meaning no information available. Therefore, the total testable cases is 18 minus 13, or 5. Then the team members calculated what percentage of cases had a "no effect" or "0" rating. Again, the "natural disaster" category shows two "0" ratings; that is of the five testable cases, two showed no significant effect on sustainability, or 40 percent of testable cases. All variable receiving 40 percent or more "no effect" rating were eliminated from further analysis. These variables are underlined in the table.

The final step in the analysis was to measure the success of each of the remaining variables in predicting the sustainability outcome of the projects. That is, did the judgement made about the positive (+) or (-) effect of each variable correspond with the project outcome (sustained or unsustained) ? If a "+" in the variable column corresponded with a "yes" in the sustained column, or if the "-" in the variable column corresponded with a "no" in the sustained column, the correspondence was considered a "hit". Conversely, if they did not match, the correspondence was sustainability was then calculated as the ratio of "hits" to the sum of "hits" plus "misses" (i.e., total possible hits). For example, in the case of the "sociocultural" variable, there were 9 "hits" out of a possible 12. If the ratio of "hits" to "possible hits" ("hits" plus "misses") was 70 percent or greater, the variable was judged to be significant in predicting sustainability. These percentages are underlined in Table A-2 (see last row, "Percentage of Correspondences"). Variables thus identified were sociocultural; implementing unit, nos., 1, 3, 4, 5 (leadership, integration, skill levels, goal conflict); national commitment: institutional organization and management, nos. 1, 2 (integration, leadership) ; financing no. 1 (absorption); project content nos. 2, 3, and 4 (technical training, technical assistance, appropriate technology); and project effectiveness.

The judgments presented in Table A-2 are tentative and reflect the evaluations of the team leader and three of the team members who were present at the end of the fieldwork. It reflects their judgment about the importance of each variable for sustainability, not whether the hypothesized relation was confirmed or denied. The

tentative analysis presented in this table was a useful supplement to them more to the more qualitative judgments made by the original review process. In many cases, the cross-tabulations presented in this table confirmed the original judgments; in others, it forced a rethinking and reevaluation that corrected mistaken judgments. In still other cases, the quantitative judgments were rejected on the basis of stronger qualitative arguments.

Although this analysis was a useful supplement to the process of evaluating sustainability, it was insufficiently developed during the course of the study for the evaluation team to be able to place confidence in its conclusions. In the future, this methodology should be used from the beginning of a project in order to develop consensus among all analysts on a quantitative means of testing hypotheses. Various other means of systematizing judgments were also suggested for future analyses, including techniques for developing group judgments, scaling the dependent variable, and weighting the independent variables.

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1 The table lists two PL 480 projects that, although researched by one team member, were not included in the final report.

APPENDIX B

LIST OF UNPUBLISHED WORKING PAPERS

The reports that formed the basis for the analysis of this study are available as independent unpublished Working Papers from A.I.D. These include:

1. Sustainability of U.S.-Supported Health, Population, and Nutrition Programs in Guatemala: A Review of Health Services Projects (1942-1987), Eugene Boostrom. Working Paper No. 136.

2. Sustainability of U.S.-Supported Health, Population, and Nutrition Programs in Guatemala: A Review of Water Supply and Sanitation Projects (1955-1987), J. Ellis Turner. Working Paper No. 137.

3. Sustainability of U.S.-Supported Health, Population, and Nutrition Programs in Guatemala: A Review of Malaria Eradication Projects (1958-1987), R. B. Greene. Working Paper No. 138.

4. Sustainability of U.S.-Supported Health, Population, and Nutrition Programs in Guatemala: A Review of Family Planning (1957-1987), Terrence McCoy and Marcia Townsend. Working Paper No. 139.

5. Sustainability of U.S.-Supported Health, Population, and Nutrition Programs in Guatemala: A Review of Nutrition Projects (1967-1987), Thomas Bossert. Working Paper No. 140.

6. Sustainability of U.S.-Supported Health, Population, and Nutrition Programs in Guatemala, 1942-1987: An Economic Analysis, R. B. Greene. Working Paper No. 141.

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